

TRUAX, GREENE & C.



COLUMBIAN EDITION

MEDICAL SUPPLIES

SURGICAL INSTRUMENTS

CHICAGO



PRICES OF

ELECTRIC APPLIANCES AND DISCOUNTS

ACCESSORIES.

BATH APPARATUS,

McIntosh, see page 447.....discount 25 per cent

CELLS,

Diamond carbon, see page 403....in lots of ten or more, discount 25 per cent
Gravity, see page 402.....

Grenet, see page 403.....

Law, see page 424.....

Leclanche, see page 423.....Singly, \$1 00; in lots of ten or more, discount 25 per cent

Miscellaneous, see page 403.....

Vetter's, see page 493.....

CHARGING MACHINE, Ranney's, see page 486.....discount 25 per cent
COILS,

Flemming's, see page 421.....discount 20 per cent

Law's, see page 433.....discount 20 per cent

Kidder's, see pages 499, 501.....discount 20 per cent

CURRENT ADAPTER, Vetter's, see page 497.....

CURRENT COMBINER, Flemming's, see page 461.....discount 20 per cent

CURRENT CONTROLLER,

Flemming's, see page 459.....discount 20 per cent

Law's, see page 433.....discount 20 per cent

Vetter's, see page 495.....

ELECTRODES,

Edison's, see page 439.....discount 20 per cent

Flemming's, see pages 462, 465 to 469.....discount 20 per cent

Galvano-Faradic Co's, see page 482.....discount 20 per cent

Kidder's, see page 506.....discount 20 per cent

McIntosh's, see pages 448 to 456.....discount 25 per cent

Truax, Greene & Co's, see pages 420 to 422.....

INDUCTION APPARATUS,

Holtz', see page 488.....discount 25 per cent

Tripier, see page 443.....discount 25 per cent

LARYNGOSCOPE, Truax, Green & Co's, see page 419.....

LARYNGOSCOPIC CONDENSER, see page 437.....

LARYNGOSCOPIC MIRROR, see page 420.....



ELECTRIC APPLIANCES AND DISCOUNTS.

ACCESSORIES.

MILLIAMPERE-METERS,

Chloride of Silver Dry Cell Battery Co's, see page 511 and 512.....net

Flemming's, see page 460.....discount 20 per cent

Galvano-Faradic Co's, see page 475.....discount 20 per cent

McIntosh's, see page 446.....discount 25 per cent

Truax, Greene & Co's, see page 408.....net

Vetter's, see page 495.....net

Waite & Bartlett's, see page 487.....discount 25 per cent

RHEOSTATS,

Flemming's, see page 470.....discount 20 per cent

Galvano-Faradic Co's, see page 480.....discount 20 per cent

Gish Ideal, see pages 416 to 418.....net

McIntosh's, see page 446.....discount 25 per cent

SWITCH BOARDS, see Batteries, Table Plate.....

BATTERIES, CAUTERY.

BATTERIES, CAUTERY,

Edison's, see page 437.....net

Fedder, see page 419.....net, \$17 00

Flemming's, see pages 468 and 469.....discount 20 per cent

Galvano-Faradic Co's, see page 474.....discount 20 per cent

Kidder's, see page 505.....discount 20 per cent

Truax, Greene & Co's, see pages 414 and 415.....net

Weinhagen's, see page 429.....net

BATTERIES, COMBINED GALVANIC AND FARADIC.

Chloride of Silver Dry Cell Battery Co's, see page 510.....net

Galvano-Faradic Co's, see page 473.....discount 20 per cent

Kidder's, see page 499.....discount 20 per cent

McIntosh's, see page 443.....discount 25 per cent

BATTERIES, FARADIC.

Barclay Mfg. Co's, see page 432.....discount 20 per cent

Chloride of Silver Dry Cell Battery Co's, see pages 513 to 518.....net

Detroit Universal, see page 428.....discount 25 per cent

Flemming's, see pages 463 and 464.....discount 20 per cent

Gaiffe's, see page 430.....net, \$6 50

Galvano-Faradic Co's, see page 476.....discount 20 per cent

McIntosh's, see pages 441 and 442.....discount 25 per cent

Schwindt & Edelkamp's, see page 431.....discount 20 per cent

Vetter's, see pages 489 and 490.....net

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ELECTRIC APPLIANCES AND DISCOUNTS.

Waite & Bartlett's, see pages 485 and 487.....	discount 25 per cent
Weinhagen's, see page 429.....	net 8 1/2
BATTERIES, GALVANIC.	
Chloride of Silver Dry Cell Battery Co's, see pp. 509, 511, 519, 520.....	discount 20 per cent
Flemming's, see pages 462 and 463.....	discount 20 per cent
Galvano-Faradic Co's, see pages 473, 475, 478.....	discount 20 per cent
Kidder's, see pages 502 and 503.....	discount 20 per cent
McIntosh's, see page 442.....	discount 25 per cent
Vetter's, see pages 491 and 492.....	discount 25 per cent
Waite & Bartlett's, see pages 486 and 487.....	discount 25 per cent
BATTERIES, OFFICE, TABLE PLATE AND CABINET.	
Edison's, see page 436.....	discount 25 per cent
Flemming's, see pages 459 and 460.....	discount 20 per cent
Galvano-Faradic Co's, see pages 471 and 472.....	discount 20 per cent
Kidder's, see pages 503 and 504.....	discount 20 per cent
Law's, see pages 434 and 435.....	discount 20 per cent
McIntosh's, see pages 444 and 445.....	discount 25 per cent
Truax, Greene & Co's, see pages 406 to 413.....	discount 25 per cent
Vetter's, see page 494.....	discount 25 per cent
Waite & Bartlett's, see pages 483 and 484.....	discount 25 per cent
BATTERIES, MISCELLANEOUS.	
Barclay Mfg. Co's pocket, see page 432.....	discount 20 per cent
Davis & Kidder's electric machine, see page 430.....	discount 25 per cent
Galvano-Faradic Co's electro-magnetic machine, see pp. 476-7.....	dis. 20 per cent
Kidder's electro-medical apparatus, see pages 499 and 500.....	dis. 20 per cent
Schwindt & Edelkamp's closed cell, see page 431.....	discount 20 per cent
Vetter's dry auxiliary, see page 493.....	discount 25 per cent
BELTS, ELECTRIC.	
Common sense, see page 426.....	discount 33 1/2 per cent
McIntosh's, see page 427.....	discount 20 per cent
Owen's, see page 425.....	discount 25 per cent
MOTORS.	
Edison's surgical and dental, see page 438.....	discount 20 per cent
Galvano-Faradic Co's, see pages 480 and 481.....	discount 20 per cent
STATIC MACHINES.	
Galvano-Faradic Co's, see page 479.....	discount 20 per cent
McIntosh's, see pages 457 and 458.....	discount 25 per cent
Waite & Bartlett's.....	discount 25 per cent

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ELECTRIC APPLIANCES AND DISCOUNTS.

TREATISES ON ELECTRICITY.

Directions for Making Battery Fluids.....	see page 521
How to Charge Storage Batteries from an Incandescent System, see page 415	
How to Charge Storage Batteries from Gravity Cells.....	see page 415
Introductory.....	see pages 405 and 406
McIntosh's.....	see page 440
Macwhinnie's Electric Calculations.....	see page 404

BATTERY CELLS.

	Crow Ft. 5x7	Crow Ft. 6x8
GRAVITY CELL, complete.....	net \$ 0 60	\$ 0 75
Zinc, with connection.....	net 25	35
Copper.....	net 11	12
Jar, Glass.....	net 25	30
DIAMOND CARBON CELLS.....	each net	1 00
Price, in lots of 10 or more.....	each net	75
Leclanche cell, complete.....	each net	1 00
Price, in lots of 10 or more.....	each net	75
Daniell's cell, complete.....	each net	1 50
Haskins' " "	each net	1 30
Grove's " "	each net	2 00
Fuller's " " large.....	each net	1 35
" " " " small.....	each net	90
Smee's " "	each net	1 50

Insulated wire furnished at market prices. Parties ordering should state gauges wanted.

GRENET BATTERY CELLS.

METAL PARTS NICKEL PLATED. WITH FRENCH CARBONS.

This battery occupies but little space, furnishes a large quantity of current, and is especially adapted for experimental purposes, or for running electro-medical batteries, especially those that are now worked with bisulphite of mercury.

The battery may be kept charged for months, and set in action at any time by simply depressing the nickel-plated rod which slides through the center of the cover. When not in use, raise the zinc above the fluid, by means of the above mentioned rod.

NET PRICES.

No. L.	6 in.	Capacity 1/2 pt.	EXTRA PARTS.		
			Carbon.	Zinc.	Jars.
No. 2.	8 in.	" 1 pt.	\$ 2 00	\$ 0 25	\$ 0 20
No. 3.	10 in.	" 1 qt.	3 50	45	30
No. 4.	12 in.	" 2 qt.	5 00	60	40

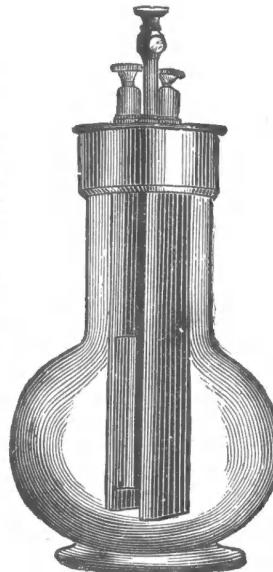


TABLE OF ELECTRICAL CALCULATIONS SHOWING RESULTS
IN
MILLIAMPERES
OF ELECTRO-MOTIVE FORCE (VOLTAGE) PASSING THROUGH TISSUE

RESISTANCE.

RESISTANCE IN OHMS.

Volts	Passing Through	25	50	100	150	200	300	400	500	800	1000	2000	Ohms Resistance	Milliamperes
10	"	400	200	100	75	50	33	25	20	12	10	5	7.5	
15	"	600	300	150	100	75	50	38	30	18	15	7.5		
20	"	400	200	130	100	66	50	40	25	20	10			
25	"	500	250	166	125	83	62	50	31	25	12.5			
30	"	600	300	200	150	100	75	60	37	30	15			
35	"	700	350	233	175	116	87	70	43	35	17.5			
40	"	800	400	266	200	133	100	80	50	40	20			
45	"	900	450	300	225	150	112	90	57	45	22.5			
50	"	1000	500	333	250	166	125	100	64	50	25			
55	"	1100	550	366	275	183	137	110	70	55	27.5			
60	"	1200	600	400	300	200	150	120	75	60	30			
65	"	1300	650	433	325	216	162	130	81	65	32.5			
70	"	1400	700	466	350	253	175	140	87	70	35			
75	"	1500	750	500	375	250	187	150	93	75	37.5			
80	"	1600	800	533	400	266	200	160	100	80	40			

Authors state that the resistance of the human body from hand to hand varies from 2,000 to 5,000 Ohms, which is equal to from 2.5 to 6 Atlantic cables.

A uterine fibroid tumor as a rule, under Apostoli's method, offers from 100 to 200 Ohms resistance.

OHM'S LAW.

This law embraces (and expresses the relation of) the three factors common to an active electric circuit, viz.:—Electro-motive force (Voltage); Resistance, and Current. Quantity expressed in Amperes or Milliamperes, and it is the fundamental principle of Electric Calculations.

$$\text{Formulæ: } C = \frac{V}{R} \quad V = C \times R \quad R = \frac{V}{C}$$

J. T. MACWHIRTER

ELECTRICAL APPLIANCES.

INTRODUCTORY.

The physician who has not made a special study of electricity but who desires to avail himself of this invaluable therapeutic agent, is frequently at a loss to decide which is the best form and manufacture of battery to purchase. This is not surprising, considering the complexity of the nomenclature of electricity and the multiplicity of the various designs of batteries now being placed upon the market by various manufacturers. As we carry all of the more important designs in stock, we are so situated as to supply a physician with the apparatus best suiting his requirements.

A concise and universally accepted definition of electricity, however desirable, has not yet been attempted by authors on this subject, but the fact that many of the laws which this force obeys are well known, is of inestimable value, and those laws are a guidance for its utilization. Electricity for convenience and the want of a better term, has very been aptly called a fluid. The laws as applied to electricity and hydro-dynamics bear a strong analogy, hence the propriety of the term "fluid" being applied to this force, pending the selection of a better one.

The following are a few demonstrative comparisons between electricity and water:

- I. Through a small wire a current of electricity of high voltage (*i. e.*, electro-motive force, usually written "E. M. F.") may be propelled, and through a small tube a high pressure of water may be obtained; hence, voltage and pressure are synonymous.
- II. The smaller the wire the greater is the opposition offered to the transit of a current of electricity. This is called resistance, and is expressed in "Ohms". A small tube also offers resistance to a flow of water.
- III. A large wire admits of a more copious flow and offers less resistance to a current of electricity; a large tube has the same advantage for water; hence the terms, "amperes" (or milliamperes) for the former and "quantity" for the latter, are synonymous.

We therefore obtain as a resultant from the decomposition of electricity (in a state of action) these bases are component factors:

- I. Pressure expressed in volts (*i. e.*, E. M. F.).
- II. Resistance expressed in ohms.
- III. Quantity expressed in amperes or milliamperes. (One ampere is equal to one thousand milliamperes.)

According to the law of Ohm, which is the guiding star to the science of electricity, resistance, or ohms, and quantity, or amperes, are always in an inverse ratio, and when multiplied are equal to the voltage, or pressure.

There are three forms of currents of electricity employed by the electro-therapist in general clinical use, each having its own function, phenomena, or field, as follows:

The first, "A," is obtained from voltage or current.

The second "B" is obtained from a coil.

The third, "C," is obtained from quantity of current.



ELECTRICAL APPLIANCES.

INTRODUCTORY.

- A. The current obtained from voltage depends for its efficiency upon the number (not their size) forming the battery. The voltage is proportional with the number of cells used; *e. g.*, a battery of 30 cells, each cell of 1.5 volts, would give an E. M. F. of 45 volts. This is commonly called the "Galvanic," or uninterrupted or continuous current. It is electrolytic and electro-chemical caustique in action. It is a current necessarily of high voltage, as it is required to overcome high resistance. The dosage of this current is measured in milliamperes.
- B. The current obtained from a coil is called the "Faradic." The passage of a current through the circuit from a Faradic battery produces a buzzing noise, and gives a shock to the patient with every vibration of the rheotome, while the Galvanic (A) is silent, no matter how powerful. The coil usually consists of two parts, the inner being insulated from the outer part. The inner coil consists of a coil formed of a short, thick wire, and the outer of a long, fine wire. The currents produced through these coils are interrupted and varied accordingly with the nature of the wires. One to four small cells only are required for the production of the initial current. The quality of these currents depends upon the coils.
- C. The current of quantity. This is known as the "Actual Cautery Current," and here large cells are used, but only from one to three cells are required; in other words an E. M. F. from 1.5 to 6 volts and a quantity of from 6 to 30 amperes are necessary for actual cautery and heated wire-snaring operations.

It may be here stated that it is customary to combine the Galvano-electrolytic and Faradic batteries in one instrument, but the Actual Cautery instrument is better in a separate and distinct battery.

That part of the negative element which is external to the cell is the positive pole, and that part of the positive element external to the cell is the negative pole.

We have recently designed three outfits for office work exclusively, and these we have respectively named:

The Truax, Greene & Co.'s "Columbian" Electrical Wall Cabinet.

The Truax, Greene & Co.'s "Exposition" Electrical Cabinet.

The Truax, Greene & Co.'s "Chicago" Electrical Cabinet.

These outfits we are satisfied cannot be surpassed for utility, completeness and workmanship. Consistent with these merits, we have placed them on the market at a very low figure, and within the reach of the physician, at a minimum price.

Having had for many years a wide experience in handling electrical apparatus, we presume to claim superior advantages and facilities for the construction of electrical fits, with a view to filling the desired requirements and covering a wide field for the application of electricity as a therapeutic agent.

Fig. 309.—"COLUMBIAN" ELECTRICAL WALL CABINET.

Fig. 309 is an illustration of our "Columbian" Electrical Wall Cabinet, shown with glass door partially open. It is especially adapted for a physician's office where space is limited, and, as its name implies, is constructed so that it may be fastened to the wall. The cells may be located in a closet, adjoining room or basement. The cabinet measures 34 inches high, 15½ inches wide (*i. e.*, across face) and 11½ inches deep, being made of polished hard rubber and all the metal parts finished in fine nickel. The accessory apparatus carried on its face and in full view may be described as follows:



TRUAX, GREENE & CO'S ELECTRIC BATTERIES.

- A. A 36-button, double galvanic switch, the buttons of which are graduated for as many cells as are desired. The double switch has the important advantage that all or any number of the cells may be switched into the circuit, equalizing the amount of work performed by the whole chain of cells, and thus increasing the life of the cells. It also enables the placing of the patient in and out of circuit without sustaining shock.

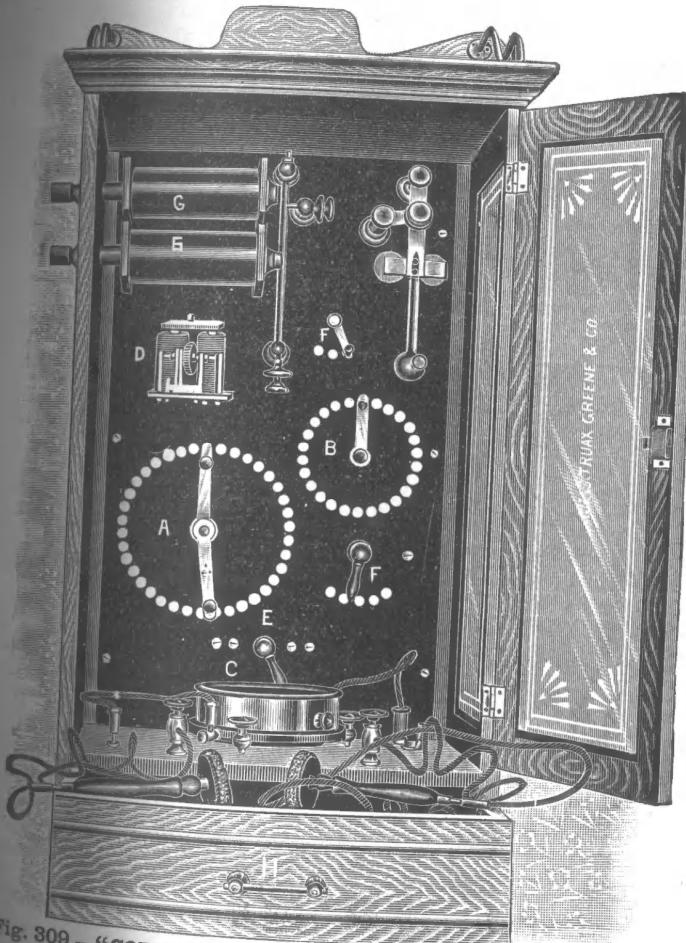


Fig. 309.—"COLUMBIAN" ELECTRICAL WALL CABINET.

This employs the electrolytic current and is used generally as an electro-therapeutic agent for the disintegration of fibroid tumors, the treatment of strictures in any accessible part of the alimentary canal, the destruction of nevi, warts, hair extraction, etc. Aposito states: "The galvanic current in large doses is powerfully antiseptic, and it sterilizes and attenuates pathogenic microbic cultures."

TRUAX, GREENE & CO'S ELECTRIC BATTERIES.

currents. The pole changer, "D," and conducting cord-posts are also furnished with a polished hard rubber base, and positioned horizontally in front of the switchboard. The milliamperemeter, "E", as described by Fig. 310, is mounted on a polished pedestal placed on the right hand side of the switchboard. The Caldwell system of Faradic coil, "F," as described by Fig. 326, occupies the left side of the switchboard.

The Cell Cabinet is constructed to accommodate 40 cells, but, if more cells are desired a proportionately larger cabinet could be made at a slight additional cost. This cabinet has its metallic parts all finely nickel plated and the design is such that all the accessories are exposed prominently to view whether open or closed.

Price, complete, including 40 cells and pair of conducting cords with sponge disc electrodes, net, \$195.00.



Fig. 316.—"CHICAGO" ELECTRICAL OFFICE CABINET.

Fig. 316 is an illustration of our "Chicago" Electrical Office Cabinet. The Cabinet is made of antique quarter-sawed oak and measures 47 inches long by 22 inches wide by 33 inches high. A horizontal table plate whose base is made of polished hard rubber is inlaid on the top of the cabinet beneath a bevel-edged plate glass top, which

TRUAX, GREENE & CO'S ELECTRIC BATTERIES.

shown open in illustration, to better bring into view the accessory apparatus which may be described as follows (see better illustration Fig. 317):

- A. Double galvanic switch, 25 buttons,
- B. 25-Button German wire rheostat,
- C. Milliamperemeter,
- D. Pole changer,
- E. Switches for current selection,
- F. Faradic coil giving the two currents in variable degrees, of quantity and tension,
- G. A pair of cords and sponge disc electrodes. Price, including 40 cells, net, \$130.00.

This cabinet forms a handsome and imposing piece of office furniture.

When it is not desirable to purchase a cabinet we are prepared to supply the same table plate separately (see Fig. 317), the cells being placed in a book-case, closet or elsewhere.

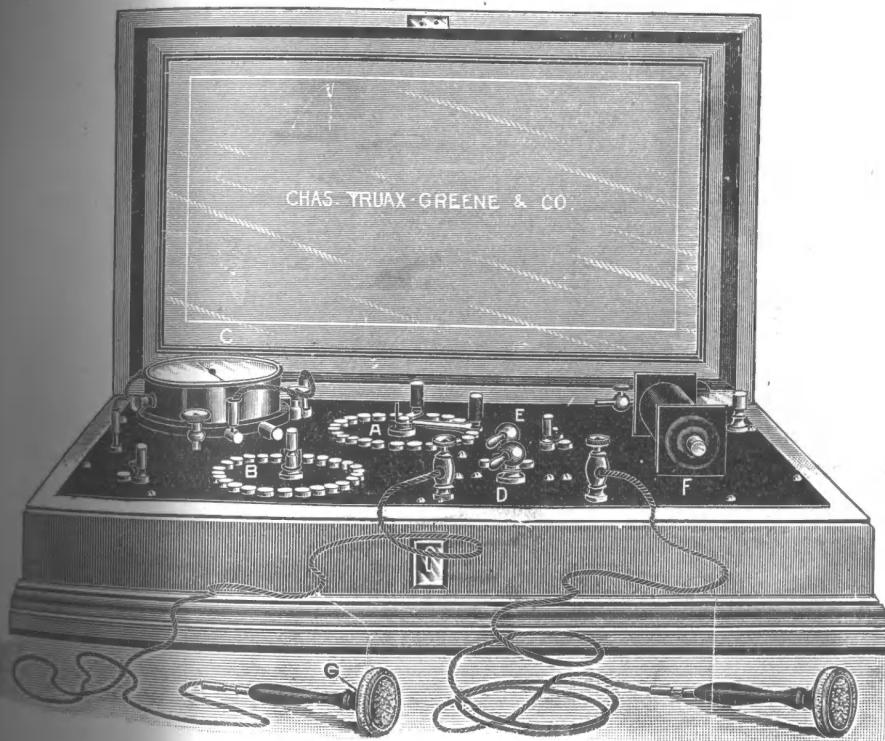


Fig. 317.—"CHICAGO" TABLE PLATE.

The Truax, Greene & Co.'s "Chicago" Electrical Horizontal Table Plate, size 12 x 22 inches.

Price, in glass top case, including pair of conducting cords with sponge disc electrodes all wired ready for making connections with cells, net, \$76.00.

(The cells are not included at this price. For prices of cells see pages 400 and 403.) This Table Plate is a duplicate of the plate described in the "Chicago" Electrical Office Cabinet, Fig. 316.

TRUAX, GREENE & CO'S ELECTRIC BATTERIES.

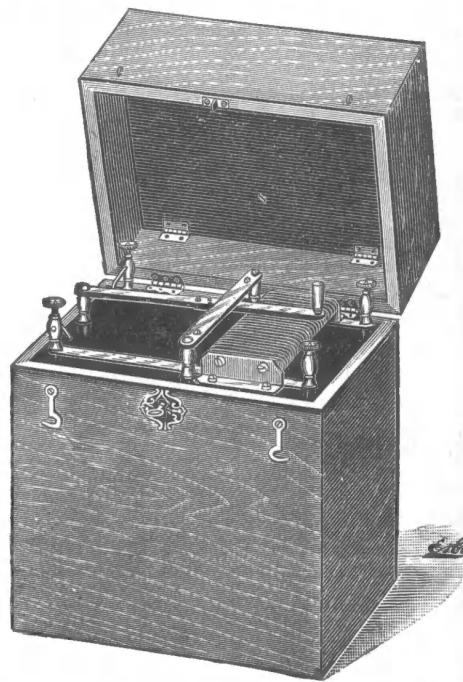


Fig. 328.—TRUAX, GREENE & CO'S ACTUAL CAUTERY STORAGE BATTERY.

Storage Electricity, for actual thermo-cautery, has many advantages over the fluid battery, which, up to recent date, the surgeon has employed as the best means of generating a current for actual cautery and hot wire-snaring operations. The fluid battery has many objectionable points. It is large, cumbersome, non-portable, unclean and troublesome to re-charge. It is difficult to regulate its current discharge. It suffers deterioration through polarization and consequent loss of electro-motive force. Contrary to this, the Storage Battery, or Accumulator, more properly speaking, is constructed so that the fluid in the cells cannot easily escape, and it is of a size and weight (see data) making it conveniently portable. It may be carried by hand or conveyed in a buggy without any danger of becoming discharged.

A Storage Battery, as its name implies, is an accumulator or receptacle into which powerful electric current, either from an incandescent system or primary (gravity) cells may be conducted and there stored. The Rheostat which forms part of the Storage Battery enables the operator to discharge the required amount, or amperes, of current necessary for the electrode employed, be it large or small, thus avoiding any loss of current and dispensing with the troublesome task of generating electricity while operating. The Storage Battery consists of 2 cells giving an electro-motive force of 4 volts and a capacity of 35 Ampere hours. It is suitable for all work where actual galvano-cautery is employed. When a Storage Battery is fully charged and its Ampere hour capacity known,

TRUAX, GREENE & CO'S ELECTRIC BATTERIES.

one can approximately estimate the amount of work to expect from it. For example, take our Storage Battery, of 35 Ampere hours' capacity. This will discharge one Ampere for 35 consecutive hours, 5 Amperes for 7 consecutive hours, or 10 Amperes for $3\frac{1}{2}$ consecutive hours, and so on. Hence we can make the calculation. If 10 Amperes be the average current, and one minute be the average duration of time employed for an operation, about ONE HUNDRED AND FIFTY OPERATIONS MAY BE PERFORMED WITH IT WITHOUT RECHARGING.

The battery case is made of polished hard wood. The Rheostat is furnished with nickel-plated trimmings and mounted on a highly polished hard rubber base. The whole is substantially finished and forms an attractive piece of office furniture.

PRICES, SIZE, ETC.

Size.....	13 $\frac{1}{2}$ x 9 x 7 $\frac{3}{4}$ inches
Weight with fluid.....	44 $\frac{1}{2}$ lbs
Electro-Motive force.....	.4 Volts
A Good Charging Current.....	2 Amperes for 18 hours
Current Discharge.....	1 to 20 Amperes
Price, including a pair of heavy conducting cords.....	Net, \$37.50
Price, with 8 gravity primary cells and connections.....	" 43.50
Price, with 8 Gethin gravity primary cells and connections.....	" 48.30

The Storage Battery may be charged from the Edison or other Incandescent lighting systems, or from gravity cells.

TO CHARGE FROM AN INCANDESCENT SYSTEM.

Have an electrician put two 16-candle lamps in multiple arc in the circuit on the positive wire next to the battery. Connect the positive wire to the post marked "P" and the negative wire to post marked "N" and switch the current on. Each lamp allows $\frac{1}{2}$ ampere current to pass, hence 2 lamps allow 1 ampere to pass and as our battery has a 35 ampere hours' capacity, it will take 35 hours to charge it. Use the battery a little every few days, occasionally charge it for a short time and it will always give satisfaction. Never connect the battery with an *alternating system*. If charged through four $\frac{1}{2}$ ampere lights, or two one ampere lights, 18 hours in the circuit would suffice for charging.

TO CHARGE FROM GRAVITY CELLS.

- 1st. Clean the glass jars.
- 2d. Unfold the copper element and place it in the bottom of each jar.
- 3d. Put into each jar enough blue vitriol to cover the copper element slightly.
- 4th. Put zinc element on the side of the jar at the top, and pour in enough clear rain water to cover it $\frac{1}{2}$ inch.

5th. Connect the copper of first cell to zinc of second cell and so on until all are connected. There will be a free copper element at one end and a free zinc element at the other end of the series. Connect these two by means of terminal wires for an hour when a good current will have been established. Then disconnect and attach the wire from the copper element to the post of the storage battery marked "P" and the wire from the zinc element to the post marked "N." Allow the current to pass into the battery every night, and do not attempt to use the battery until it has been in charging at least five days.

It will be better for the gravity cells and also for the cautery battery to switch on the current for a short time every day. Once every thirty days draw out one-half of the white fluid from the crowfoot gravity cells and fill with rain water.

TRUAX, GREENE & CO'S ELECTRIC BATTERIES.

THE RHEOSTAT.

To control the discharge of the electric current accumulated in the storage battery, each storage battery is supplied with a rheostat.

Attach the heavy conducting cords to the binding posts on the front of rheostat. Take particular care to move the lever so as to throw the entire resistance of the rheostat into the circuit before attempting to heat an electrode. By moving the lever slowly any desired rate of discharge may be obtained, thus enabling the use of very frail or very heavy electrodes with safety, and without loss or waste of current.

The Gethin cell is the best of the gravity primary cells of which we have knowledge to employ for the purpose of charging a storage battery. It is "set up" as follows: Place 3 to 4 lbs. of copper sulphate in the jar on and around the copper element, which rests on the bottom of the jar or cell. The jar is then nearly two-thirds filled with water; place the porous cup in the jar; set the zinc in the porous cup; then nearly fill the porous cup with a weak solution of sulphate of zinc (about 1/3 to a pint of water) and pour one ounce of metallic mercury into the cup over the zinc. Connect the cells as already directed and keep the circuit closed for two hours to establish a good current. Now disconnect the two termini and the wire from the copper element to the post of the storage battery marked "P" and the wire from the zinc element to the post marked "N."

Eight Gravity primary cells are required to charge a 4-volt storage battery, they may be located in a basement or an adjoining closet and connected with the battery by means of insulated heavy copper wires. When charging from the primary cells there is no danger of warping the plate of the Storage Battery; it may therefore be kept permanently connected with the primary cells, excepting during hours, or office hours.

THE GISH IDEAL RHEOSTAT.

To the physician who has the convenience of the Edison 110-volt continuous incandescent current in his office the Gish Ideal Rheostat is a device worthy of special consideration. It is placed direct in the above circuit with the main wires, and being a controller of both voltage and amperage, it practically is a regulator for the application of electricity in all its various forms and phases. Rheostat completely dispenses with battery cells and consequently the troubles accompanying them.

The Rheostat is the ultimatum of simplicity and cannot be destroyed by wilful neglect or gross carelessness.

It is mounted in a case handsomely finished in black enamel and dressed with nickel trimmings.

The unique method of "dosing" out the current with the Gish Ideal Rheostat is as follows: When the main street-switch is closed, the current passes direct from the street into the device, following the one continuous wire of which it goes out again into the street, but by an ingenious arrangement the operator has safe and absolute control over the current by simply sliding a button along a wire that runs parallel with the wire.

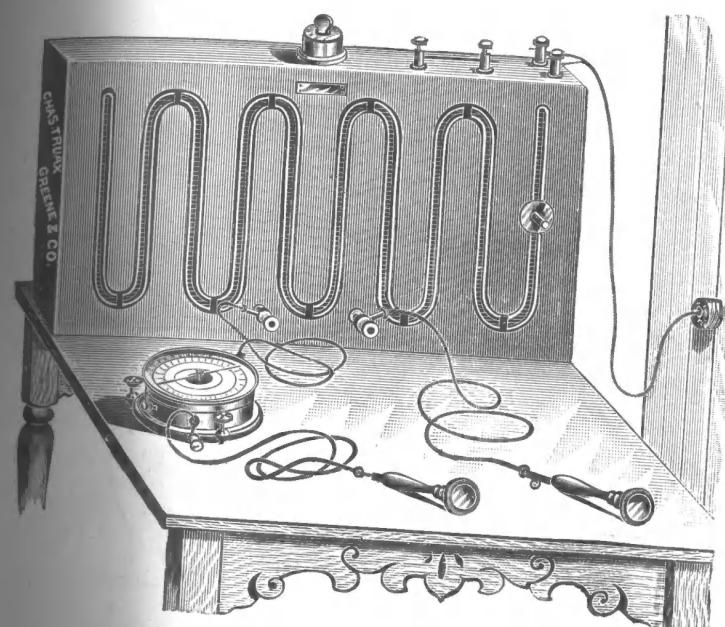
This arrangement enables the operator to take, by what is known as the shunt circuit, just the exact quantity and intensity of current desired.

It is this simple and durable arrangement that prevents the patient from being shocked directly in the main street circuit.

It also allows the treatment of the patient without giving any shock, unless it is desired to do so, and this one advantage, of preventing the patient from being shocked, is pre-eminent.

THE GISH IDEAL RHEOSTAT.

This Rheostat is made in three forms to cover the field as required by the physician and surgeon, viz.: No. 2, No. 3 and No. 4.



THE IDEAL RHEOSTAT NO. 2. Price, Net, \$60.

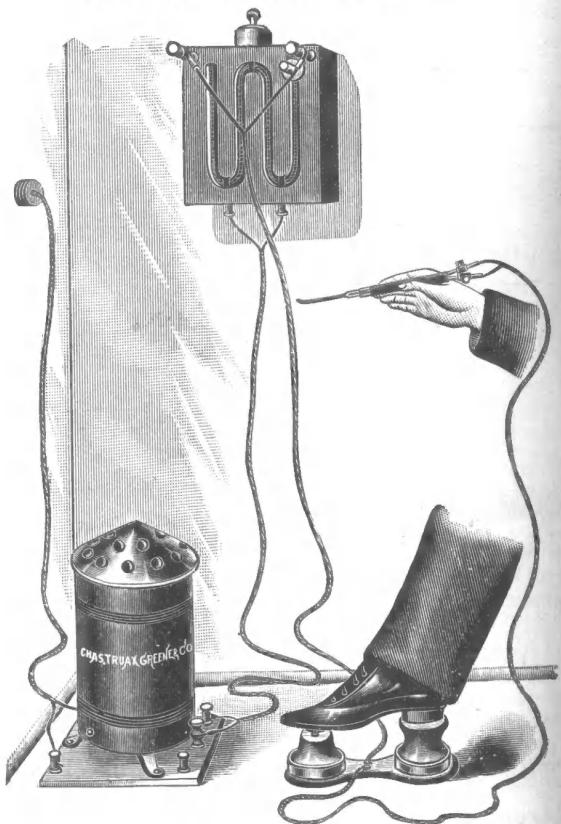
This Rheostat is designed for all galvanic and faradic work, both electro-therapeutic and diagnostic, whether it be in the hands of the general practitioner or the specialist. It operates the small incandescent lamps used in examining the throat, nose and other internal varieties of the body; and also operates the electro-magnet to a degree of nicety. This instrument gives a gradual and unbroken change in voltage from zero to 80 volts, or any fraction thereof; and an amperage from zero to any number or fractional part of milliamperes up to two and one-half full amperes of current (0-2½). Conducting cords, per pair, net, \$1.00 extra. Sponge disc electrodes, per pair, net, \$1.20 extra. Milliamperemeter, Truax, Greene & Co.'s, Fig. 310, price, net, \$17.50.

THE GISH IDEAL RHEOSTAT NO. 3.

This instrument is designed for the electro-cautery. It will heat the eye, ear and dental electrodes. It will heat most of the nose and throat electrodes, or such electrodes as are made of platinum wire, not larger than No. 22, B. & S. gauge.

This instrument heats the platinum cautery snare and will operate the electro-magnets. It will operate Bleyer's Electric Tongue Depressor, Myles' Electric Otoscope, Laryng-

THE GISH IDEAL RHEOSTAT.



THE GISH IDEAL RHEOSTAT NO. 3. Price, Net, \$55.

scope, Trouvé Lamp, and all electric illuminators from two volts and $\frac{1}{2}$ candle-power upwards to the full extent of the current.

This instrument also operates the 5-volt motors adapted to storage batteries at the desired speed without variation. It has a capacity in current amperes from zero to eighteen (0-18).

All necessary wiring and pair of conducting cords, net, \$3 extra.

Universal cautery electrode handle, net, \$3.50 extra.

Reel, double canula and platinum wire for snaring operations, net, \$3.50 extra.

For price of cautery electrodes, see page 400.

THE GISH IDEAL RHEOSTAT, NO. 4. Price, Net, \$85.

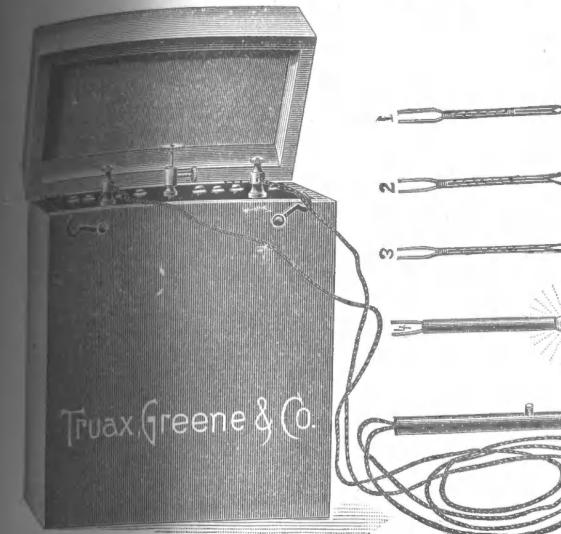
This instrument is a little larger than No. 3, and is designed to obtain a greater current suitable for extra heavy electrodes and large loop-snaring operations. Capacity in current amperes from zero to twenty-five (0-25).

Prices of conducting cords, handles, etc., same as quoted with the No. 3 Rheostat.

A book of directions for placing and operating these Gish Ideal Rheostats accompany every instrument.

NOTE.—These cautery rheostats, viz., Nos. 3 and 4, may be used on either the continuous incandescent system or on the 52-volt alternating system, but in ordering state upon which system the instrument is to be used.

TRUAX, GREENE & CO'S APPLIANCES.



THE FEDDERN CAUTERY BATTERY

This Battery is far superior to any of the cheap Cautery Batteries in the market, besides being lower in price.

In addition to the Cautery Electrodes we supply a small electric lamp, which will be found invaluable for illuminating any of the cavities of the body.

Price of Battery with Conducting Cords, Universal Handles with interrupting button, one Cautery Point, one Cautery Curette, and one Cautery Knife:

Net \$17 00
Electric Lamp, extra, 3 50

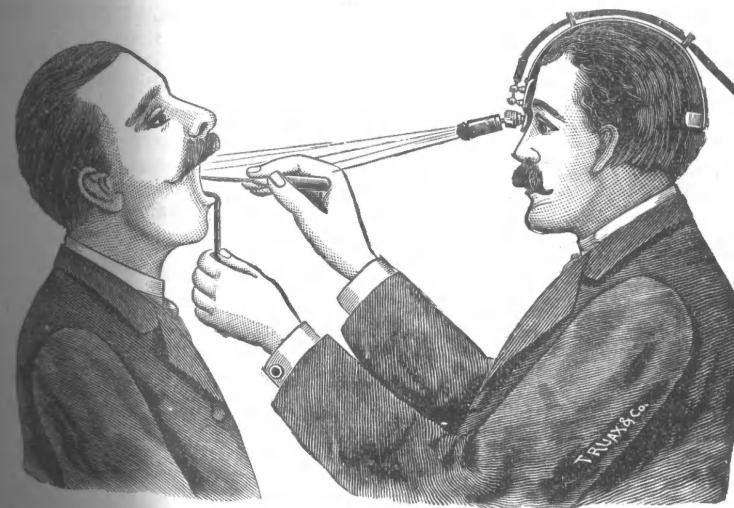
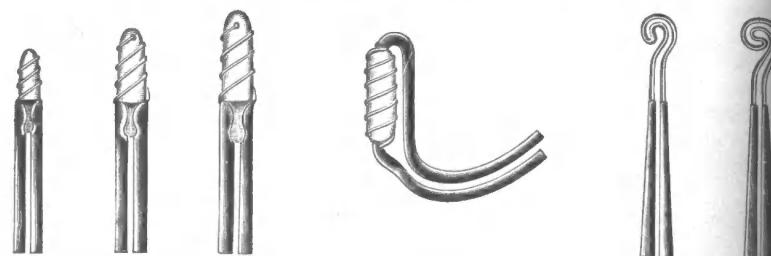


Fig. 329—ELECTRIC LARYNGOSCOPE.

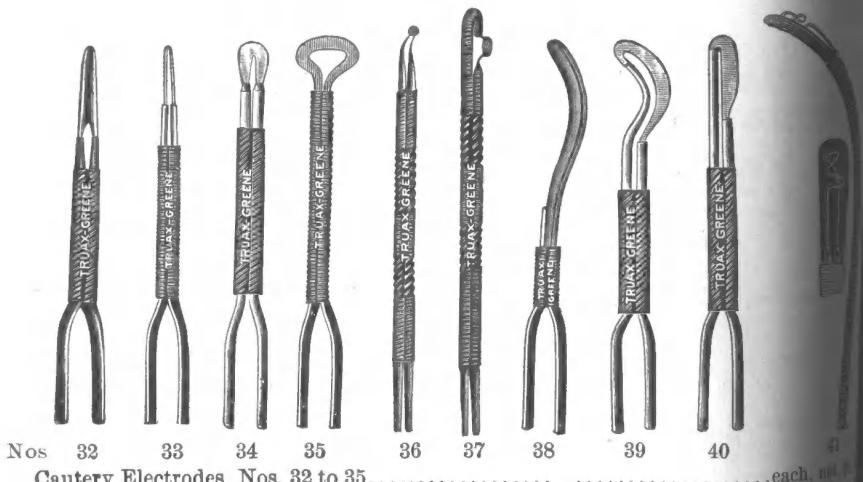
This shows an Electric Laryngoscope attached to our portable battery. It consists of a cylinder $2\frac{1}{2}$ inches long and $\frac{3}{4}$ inch in diameter, provided with two powerful lenses. This instrument when lighted throws a white, brilliant light of 6 to 8 candle power, directly upon the object in the focus. This instrument is particularly adapted to the wants of the specialist. By removing it from the head it may be used as a hand illuminator in examining any of the cavities of the body.

For sale by Truax, Greene & Co., where sample may be seen.

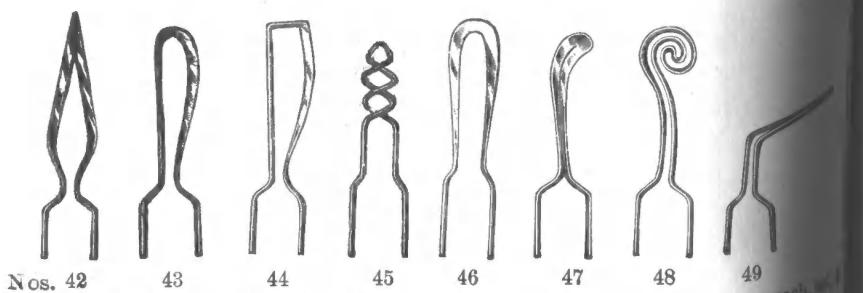
CAUTERY ELECTRODES.



Nos. 25	26	27	28	29	30
Cautery Electrodes No. 25, each, net, \$1 75			Cautery Electrodes No. 28...each, net		
" " 26, " " 2 00			" " 29, 30 "		
" " 27, " " 2 25			" " 31, "		



Nos 32	33	34	35	36	37	38	39	40
Cautery Electrodes Nos. 32 to 35.....								
" " 36 and 37.....								
" " 38 to 40.....								
" " 41.....								



Nos. 42	43	44	45	46	47	48	49
Cautery Electrodes, Nos. 42 to 50.....							



FIRST AND FOREMOST

Among all Battery Cells for Electro-Therapeutic Practice Stands

THE CELEBRATED

"AXO" BATTERY.

Why? Because:

- 1st. It is the only Cell in the world which generates the proper current for medical treatment.
- 2d. It yields better results to the practitioner and greater satisfaction to the patient than any other Cell.
- 3d. It lasts longer than any other Cell.
- 4th. It is more economical than any other Cell.
- 5th. It does not establish local action in itself nor corrode its connections, but is clean and gives no trouble.
- 6th. Because the results from its use in electro-therapeutic treatment are unattainable from any other known electrical source.

We manufacture battery cells only, and do not make nor deal in cabinets, switch-boards and other appliances for fitting up physicians' offices.
To the manufacturers of such appliances we say:

Do not buy for use with your instruments the lowest-priced cell to be found in the market. Remember that the reputation of your instruments depends mainly upon the cells with which they are connected.

To physicians who use such appliances we say:

Upon your battery cells depends the success or failure of your work. All of your other apparatus is merely a more or less convenient medium for dispensing what the battery generates. You can judge fairly of the quality of instruments and switch-boards by examining them. No examination will give you any idea as to the value of your battery cells. You can find that out only from use in your practice, and that, *not in a week nor a month, but in one, two or three years.* Can you afford to risk experimenting for that time? Why not order at once the standard cell for such work—the "Axo"—and be sure of your ground?

Whatever make of cabinets, switch-boards or instruments you decide to purchase, be sure to insist that the "Axo" cells are furnished with them. Do not let dealers persuade you into taking something else "just as good" or a "great deal better." Call for the Standard "Axo" Cells and take nothing else. If you have any difficulty in getting them send to us for circular and prices.

THE LECLANCHÉ BATTERY CO.

111-117 East 131st Street, - - - - - NEW YORK.

For Sale By

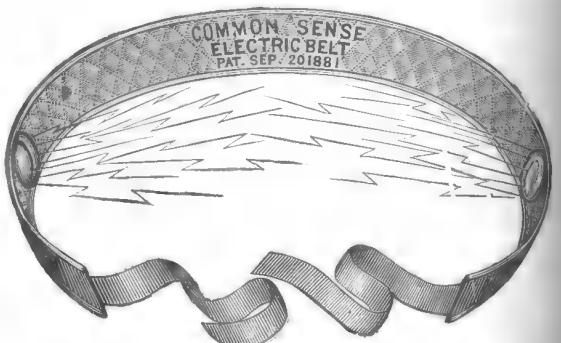
CHAS. TRUAX, GREENE & CO.

For Prices See Page 400.

ELECTRIC BELTS.

Try it and be Convinced.

DISCOUNT, ONE-THIRD.



THIS BELT CURES

PARALYSIS,
NEURALGIA,
RHEUMATISM,
SPINAL IRRITATION,
NERVOUS EXHAUSTION,

LUMBAGO,
DYSPEPSIA,
FEVER AND AGUE,
SEMINAL WEAKNESS, FEMALE COMPLAINTS,
MALARIA,
LAME BACK,
LIVER COMPLAINT,
KIDNEY DISEASE,
GENERAL DEBILITATION.

FAC-SIMILE OF LABEL.

COMMON SENSE ELECTRIC BELT THE BELT FOR THE MILLION.

Warranted Equal to any of the High Priced Belts and sold at a REASONABLE

Manufactured by the

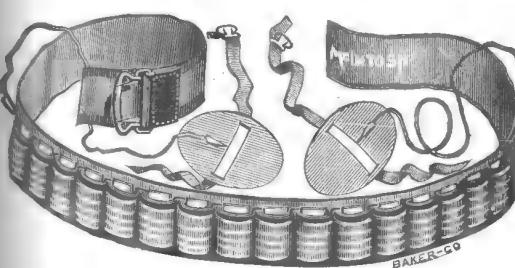
Common Sense Electric Belt Co.
CHICAGO, ILL.

Pat. Sept. 20, 1881.

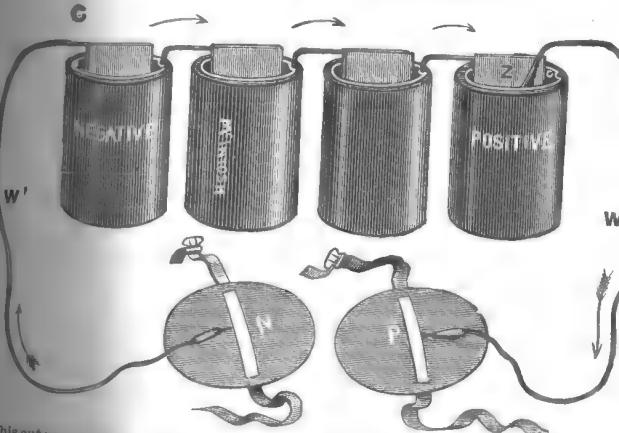
Price to patients according to quality, \$3.00, \$4.00 and \$5.00 each. See page 400.
Sent by mail on receipt of price. Address your orders to our agents,

CHAS. TRUAX, GREENE

ELECTRIC BELTS.



McINTOSH ELECTRIC BELT.



This cut represents a section of cells from the McIntosh Electric Belt; Z, zinc in the positive cell; W, wire connecting cell and positive electrode plate P; O represents copper lining of the negative cell; W', wire connecting with the negative electrode N.

We do not offer the McIntosh Electric Belt as in any sense a "cure all." Neither do we offer it in competition with the so-called "cheap" electric belts with which the market is flooded.

The McIntosh Electric Belt is a perfect galvanic battery in miniature; the same high quality of material and workmanship which is found in all the articles manufactured by others into the manufacture of our Electric Belt, and we make the assertion in the confidence in its truthfulness, that the McIntosh Electric Belt, if used under the direction of the physician, will afford relief in any case of disease in which the

patients would indicate the use of a mild galvanic current.

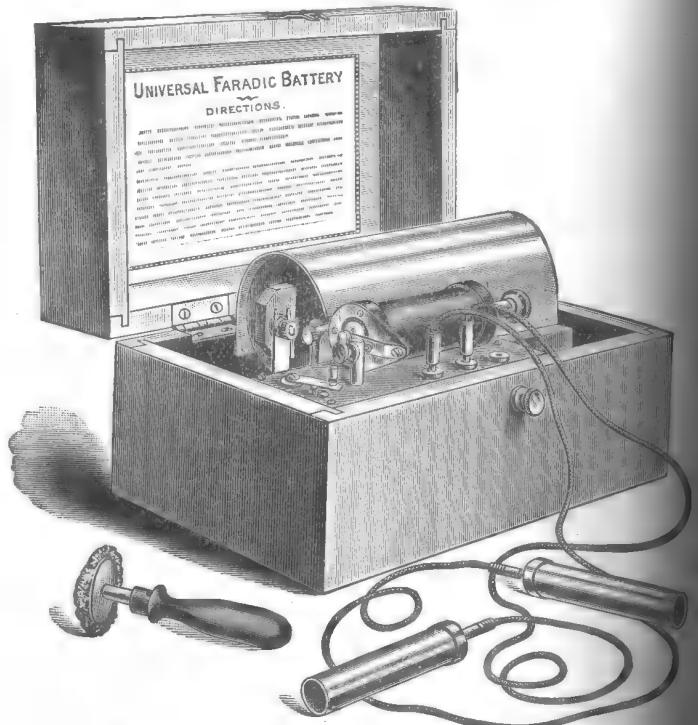
Patients see page 400.

Suspensory Attachment..... \$10 00

SEND FOR COMPLETE ELECTRO-THERAPEUTICAL CATALOGUE. 12 50



CELEBRATED DETROIT BATTERIES.



UNIVERSAL FARADIC BATTERY No. 2.

As a complete and finely finished Portable Faradic Battery, for either Physician or Family use, this Battery has no equal. It has embodied many new features and improvements, which are not to be found in any other medical battery made. The cover is stopped by closing same, thus preventing all waste of energy when battery is not in use.

A great annoyance heretofore experienced with most batteries has been that of the battery connections, and in fact all metal parts of batteries by the spilling of the liquid vapor, of the liquid. This we entirely avoid by the use of the *Dry Cell*.

The current is smooth, soft and of pleasing quality, being entirely free from pulsations, yet susceptible of gradual regulation, from a very weak up to a very powerful one. These batteries are very convenient for portable use, being light and having no liquid cells.

Full directions for using will be found on the inside of the cover of each case.

Our No. 1 Battery has the same mechanism as the No. 2, only the cell is larger in position and the battery box is square and somewhat larger.

No. 2, Complete with Handles, Silk-covered Cords, Sponge Electrodes; Price to patients, \$6.00 each.

See Page 400.

Foot Plates.....

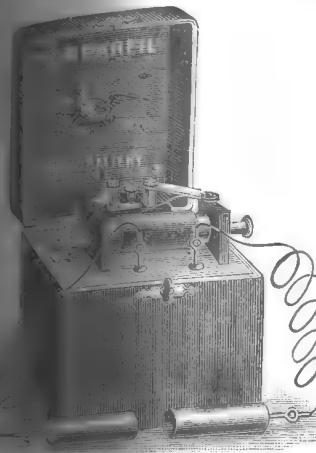
MANUFACTURED BY DETROIT ELECTRICAL WORKS, DETROIT, MICH.

For sale by Chas. Truax, Greene & Co.



WEINHAGEN'S BATTERIES.

NONPAREIL No. 1. A THREE-CURRENT FARADIC BATTERY.



FOR MEDICAL USE.

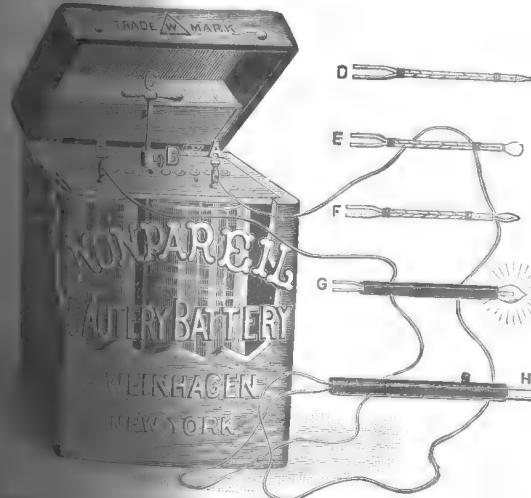
Size, $5\frac{1}{2} \times 5\frac{1}{4} \times 5\frac{1}{4}$.

The merits of this battery will be easily appreciated, as possessing neatness of design, simplicity of operation, and superiority of material, workmanship, and the production of a pleasant and uniform electric current, both mild and powerful. These qualities have heretofore only been found to exist in expensive and unnecessarily complicated machines.

Price to patients.....each, \$6.00

See page 400.

NONPAREIL CAUTERY.



HANDSOME, SIMPLE
AND POWERFUL.
EASY TO OPERATE.
LOW IN PRICE.

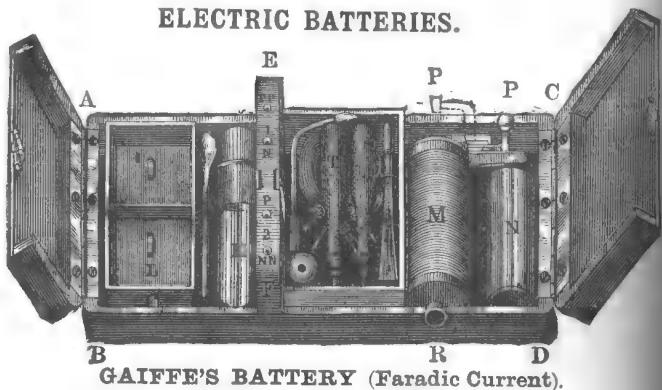
Size, $12 \times 10 \times 5\frac{1}{2}$ inches.
Has interrupting handle,
electric lamp, cautery
knife, point, and curette.
Price, complete, in polished
mahogany box,
net, \$21.00.

In ordering, please specify our batteries. You will be pleased with their beauty and simplicity.

H. WEINHAGEN,
22-24 North William Street,
NEW YORK.

Buy by Chas. Truax, Greene & Co. When Writing Manufacturer, Please Mention this List.

ELECTRIC BATTERIES.



GAIFFE'S BATTERY (Faradic Current).

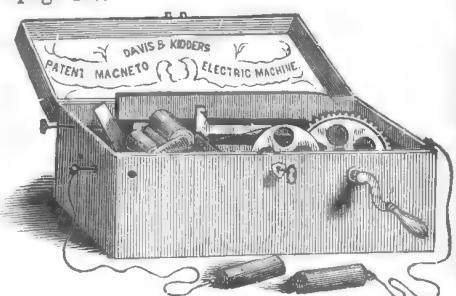
This gives: 1. The primary current. 2. The secondary current. 3. The sum of the two first combined, in intensity. 4. Shocks, slow or fast, according to the use of the contact breaker or the lever.

Admitting that the three currents produce the same physiological effects, there is a series of results increasing in intensity. The battery working this instrument contains a small rectangular cell of hard rubber divided in the middle, each part containing a carbon plate and also one of zinc. Each is charged with bisulphate of mercury and water, producing no fumes or smell whatever. To prepare the apparatus for use, remove the zinc from the gutta percha reservoir, place a few grains of bisulphate of mercury on the carbon, contained in same reservoir, and mix with a little water. Replace the zincs. Should the apparatus refuse to work, give the vibrator an impulse with your finger. The power of the apparatus is regulated by pulling out the tube more or less, and increased by adding a dose of bisulphate of mercury. By properly placing the conducting wires in their seats we have the primary, the extra, and the primary and secondary currents. To produce shocks, press on the button. After use, clean out the reservoirs, wash and dry them.

To keep the apparatus in repair: Oxide often forms on the platinum of the wires; clean it by rubbing it softly with a small smooth file. The same may happen to the wires which touch the platinum wires emerging from the reservoir; clean them in like manner, and as they serve the double purpose of holding in place the reservoirs and forming the connection with the instrument, it is necessary to re-bend them, should they cease to touch the wires. The ends of the conducting wires and their sockets should also be kept clean; this may be done with powdered pumice stone and a rag—the holes cleaned out with a piece of wood.

Accessories to the Battery.—1. A pair of Sponge Holders. 2. An olive-shaped Excitor. 3. A spherical Excitor. 4. A metallic Brush.

Price of Apparatus, to patients \$10.00; same, extra Troughs, each, \$1.75; extra Plates, each, 20c. See page 400.



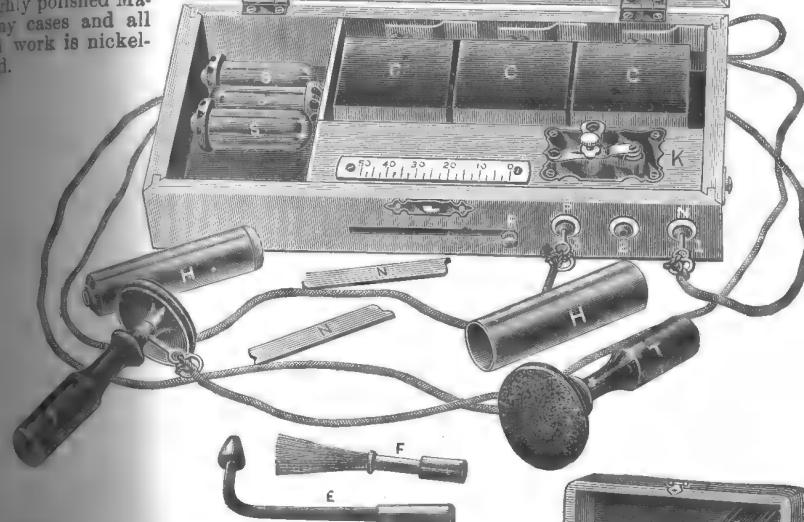
DAVIS & KIDDER'S ELECTRIC MACHINE.

Price to patients \$10.00. See page 400.

ELECTRIC BATTERIES.
THE SMITH & SHAW CLOSED CELL POCKET BATTERIES.

One, two or three cells. Of those with one cell, two or three, according to the strength of the current wanted, either one cell only, or more, may be used at one time. These batteries can be safely carried in the pocket, charged ready for immediate use.

They are contained in highly polished Mahogany cases and all metal work is nickel-plated.



ALPHA FARADIC BATTERIES.

Reliable and cheap, and particularly adapted for family use. They are in elegant, polished cherry wood cases, all metal work is nickel-plated and the conducting cords are silk covered.

Price to Patients, See Page 400.

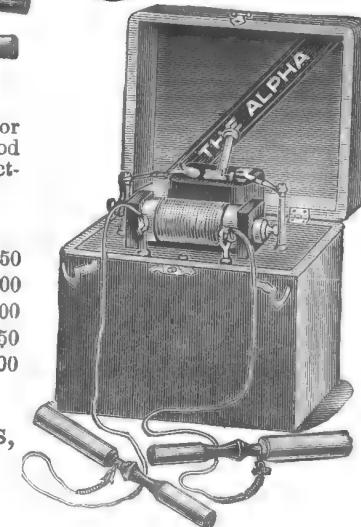
One Cell	Pocket Battery, size $3\frac{3}{4} \times 6\frac{1}{4} \times 1\frac{5}{8}$ in.	\$ 7.50
Two Cells	" " $4 \times 7\frac{1}{4} \times 1\frac{5}{8}$ in.	10.00
Three Cells	" " $4 \times 8\frac{1}{4} \times 1\frac{5}{8}$ in.	12.00
Alpha No. 1 (one carbon)"	$6\frac{1}{2} \times 5\frac{1}{2} \times 6\frac{1}{2}$ in.	5.50
" 2 (two carbons)"	$6\frac{1}{2} \times 5\frac{1}{2} \times 6\frac{1}{2}$ in.	7.00

THE SMITH & SHAW ELECTRIC CO.

SCHWINDT & EDELKAMP, Successors,

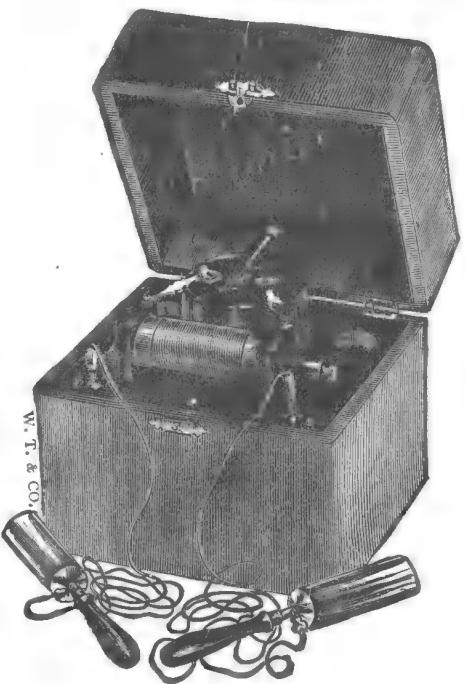
610 Eighth Avenue, NEW YORK.

FOR SALE BY CHAS. TRUAX, GREENE & CO.





ELECTRIC BATTERIES.
THE BARCLAY No. 1 FARADIC BATTERY.



For physicians' or household use, an excellent machine at a popular price.

Patent Hydrostat, Hinged Rod, Covered Cords and Shell Electrodes, Handles. All metal parts nickel-plated and burnished. In handsome polished wood case. Size, $6\frac{1}{2} \times 6$ inches.

Price to patients.....each, \$15.00

See page 400.

No. 1 POCKET BATTERY.

(Barclay Manufacturing Co.)

Complete with Zinc, Carbon, Coil and Regulator, Silk-Covered Cords, Shell Electrodes and vial of bisulphate of mercury. Polished mahogany box, $4\frac{1}{4} \times 3 \times 1\frac{1}{2}$ inches.

Price to patients.....each, \$2.80

See page 400.

No. 2 POCKET BATTERY.

(Barclay Manufacturing Co.)

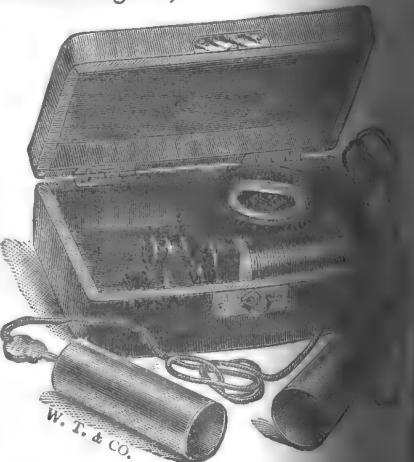
Two Cells.

Complete with Zinc, Carbon Cups, Coil and Regulator, Silk-Covered Cords, Shell Electrodes with Handles and vial of bisulphate of mercury. Polished mahogany box, $6\frac{1}{2} \times 3 \times 1\frac{1}{2}$ inches.

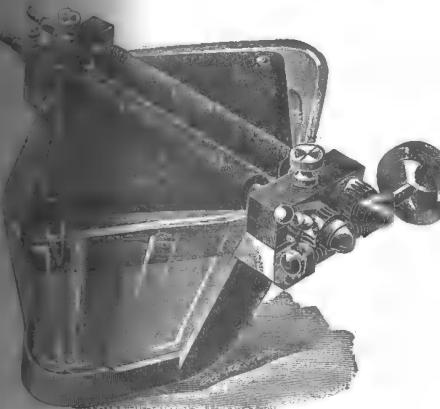
Price to patients.....each, \$5.00

See page 400.

FOR SALE BY CHAS. TRUAX, GREENE & CO.



LAW ELECTRIC BATTERIES.
THE LAW BAILEY CURRENT CONTROLLER.
FOR REGULATING THE STRENGTH OF CURRENT, OR DOSAGE.

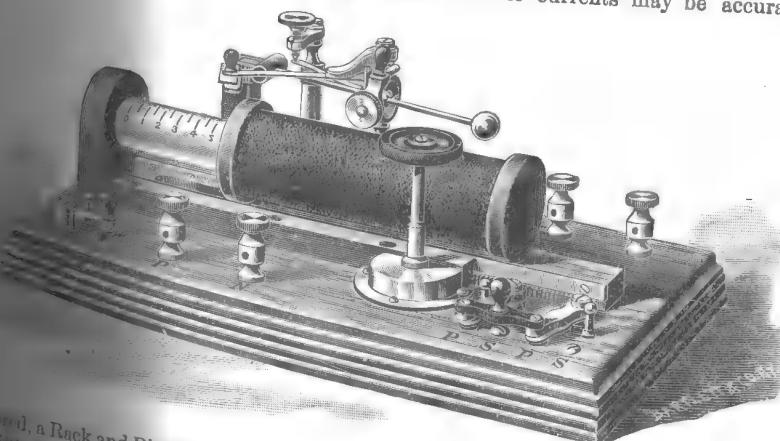


List price.....

Subject to discount. See page 400. \$15.00

THE LAW DUBOIS-RAYMOND FARADIC COIL

Is provided with a slow and rapid Rheotome or Current Interrupter, a Commutator or Polarity Changer, a Calibrated Scale by which all the currents may be accurately



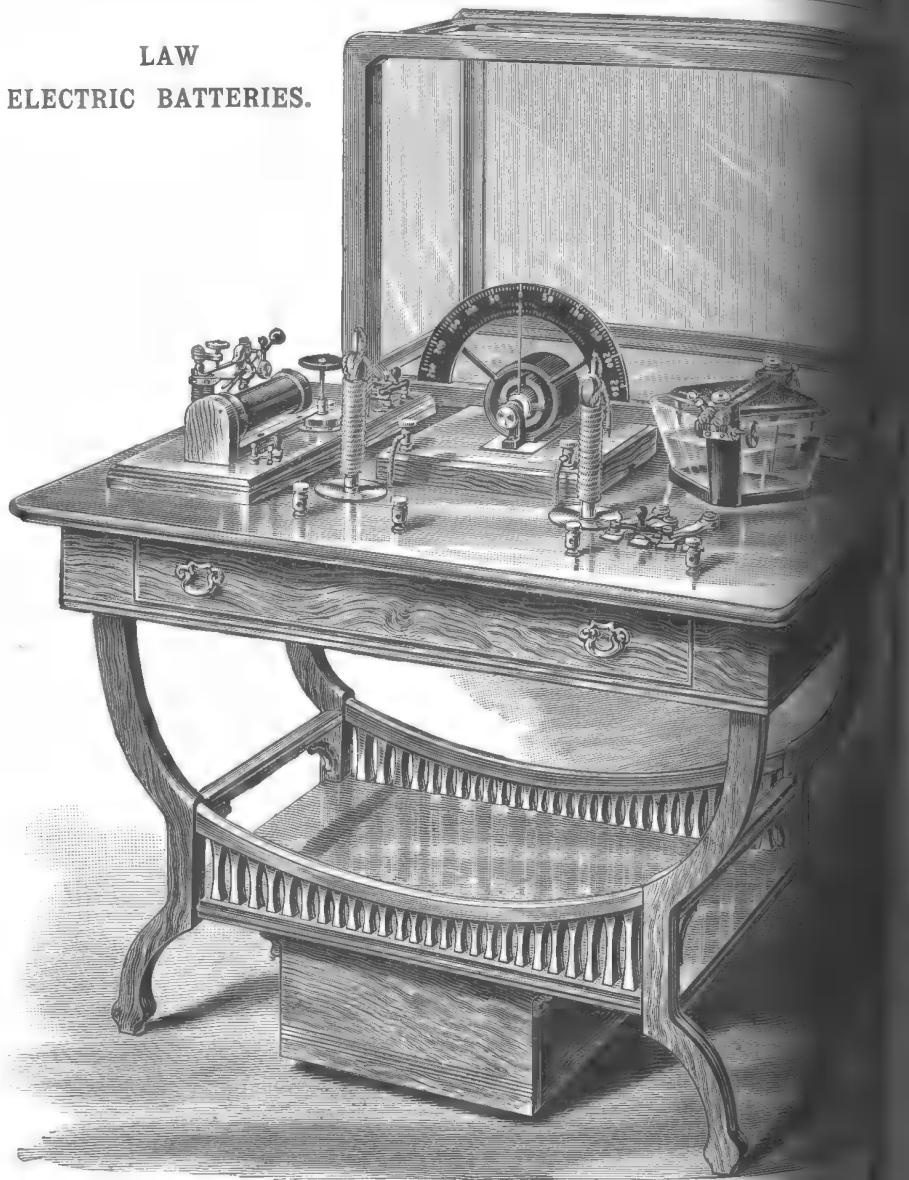
graduated, a Rack and Pinion by which the currents can be graduated to the utmost delicacy and to the greatest power. Mounted on handsome base, all metal parts heavily plated. Price.....

Subject to discount. See page 400. \$30.00

34 CHAS TRUAX & CO. GREENE

LAW

ELECTRIC BATTERIES.



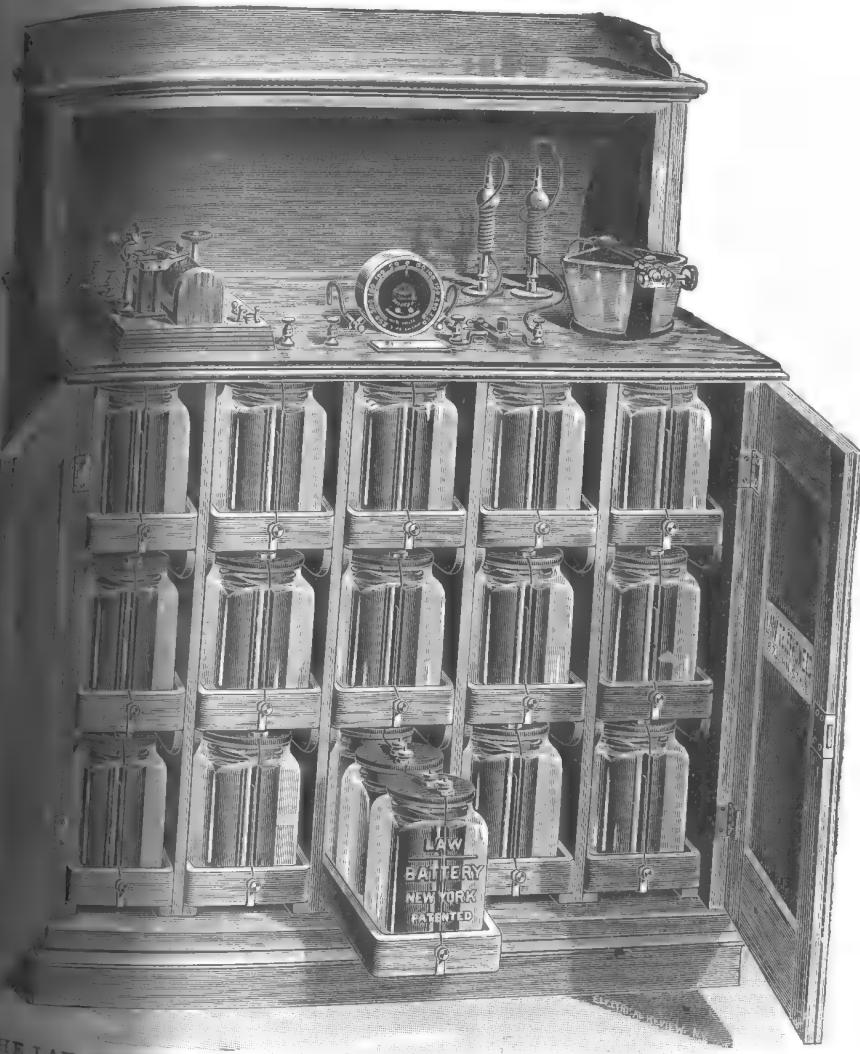
LAW ELECTRO-THERAPEUTICAL TABLE OFFICE OUTF

Antique Oak Table, 23 inches deep, 30 inches high, 33 inches long; Plate Glass Cover; Top Drawers for Electrodes and Smaller Drawer for two cells on Faradic Co. shown is new, and possesses features that recommend it where accuracy and easy reading. The Cells are placed at the most convenient point, and two wires, one from terminal of first carbon, are led to binding posts in rear of table. Sixty Cells and Table as shown.

Subject to discount. See page 400.

CHAS TRUAX & CO. TRUAX GREENE & CO.

LAW ELECTRIC BATTERIES.



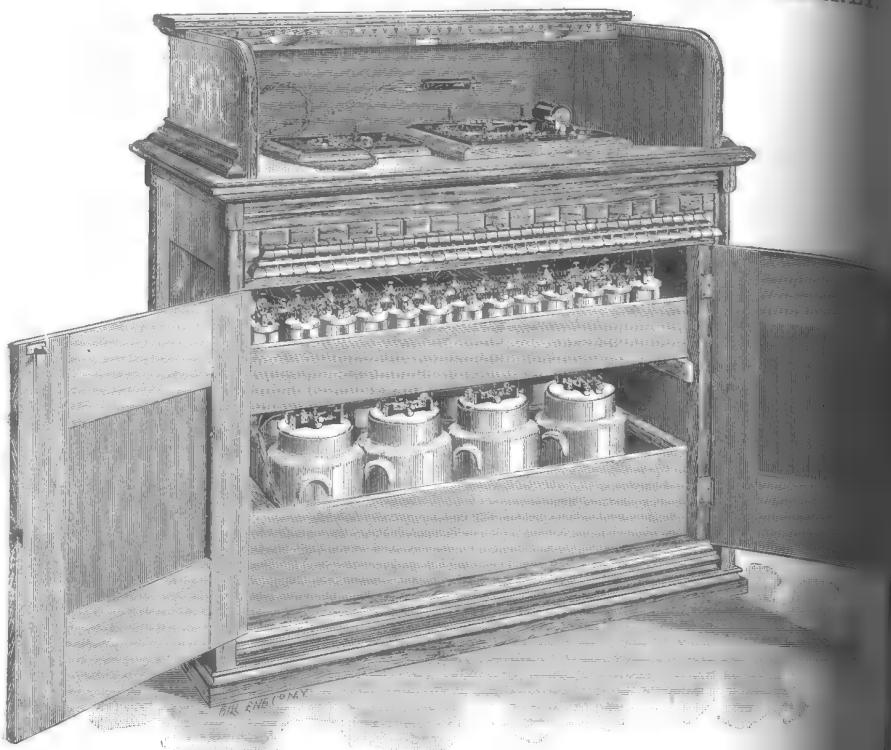
THE LAW ELECTRO-THERAPEUTICAL CABINET OFFICE OUTFIT.

ELECTRO-THERAPEUTICAL CABINET OFFICE OUTFIT.

Antique Oak Roll Top Desk Cabinet, with finished back and ball-bearing casters. Has each holding four celis latest improved Law Battery. Each Tray can be drawn out and put back without disturbing wire connection, the circuit opening and closing automatically. This feature is entirely new; is one of great convenience, and admits the full use of the Cabinet. In a Desk only 23 inches deep, 30 high, 33 long—never before accomplished. It is built in a new Dubois-Raymond Paradic apparatus, just out, and the New Bailey Current Regulating Switch, etc. Can be set and cared for by a child. Send for catalogue.

CHAS TRUAUX & CO. GREENE & CO.

EDISON ELECTRIC BATTERIES.
EDISON COMBINATION CAUTERY AND GALVANIC CABINET.



FLOOR SPACE 3 FT. 10 IN. X 2 FT. 2 IN.

This cabinet is similar in design to the galvanic cabinet illustrated on the previous page. Eight Edison-Lalande cautery cells are contained in the lower tray and are connected to a rheostat mounted on the top alongside the switchboard which is connected with 50 Edison cells for galvanic and faradic work contained in the upper tray.

PRICE LIST.

Cabinet complete with 8 type M cells for cautery work and 50 type A cells for galvanic work with rheostat, switchboard, battery cords, cautery cords and sponge electrodes. Net The same only with 8 type L cells for cautery work (see page 4) and 50 type A cells for galvanic work (see page 12).

PRICE OF RENEWAL PARTS FOR COMPLETE BATTERIES.
3 TYPE M CELLS.

32 Copper Oxide Plates (capacity 2 charges)	N
16 Outside Zinc " " 1 "	N
8 Middle " " 1 "	N
4 Cans Caustic Potash each containing 8 sticks	N
Half Gallon Can Heavy Paraffine Oil	N

50 CELLS TYPE A.

50 Copper Oxide Plates (capacity 2 charges)	N
50 Zinc " " 2 "	N
2 Cans Caustic Potash each containing 50 sticks	N
Half Gallon Can Heavy Paraffine Oil	N

EIGHT CAUTERY CELLS L.

32 Copper Oxide Plates (capacity 2 charges)	N
24 Zinc " " 2 "	N
2 Cans Caustic Potash each containing 8 sticks	N
Half Gallon Can Heavy Paraffine Oil	N

CHAS TRUAUX & CO. GREENE & CO.

EDISON ELECTRIC BATTERIES.

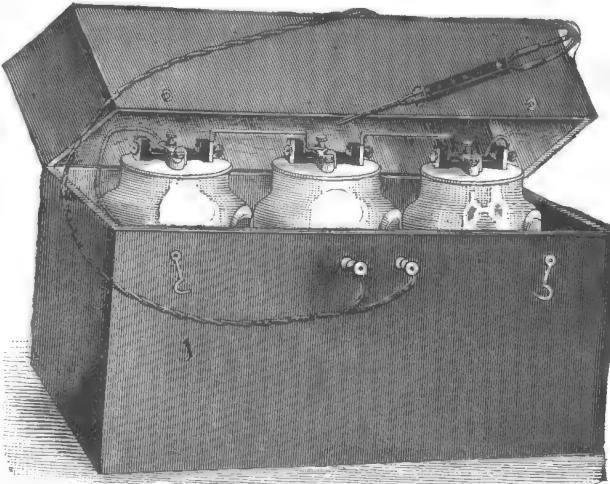
A Complete Cautery Outfit for \$25.00.

ONE CHARGE WILL LAST ONE YEAR,
With absolutely no attention.

Price complete,
Includes 3 Edison-
Lalande Cells,
Type P, contained
in a Handsome Case

- 1 Pair Cautery Cords
- 1 Edison Cautery Handle
- 1 Edison Cautery Knife

Net, \$25.00.



This is the most complete, economical and efficient Cautery Battery in the market.



THE DELAVAN
ELECTRIC LARYNGOSCOPIC CONDENSER.

This Condenser is fitted with a Ball and Socket Attachment that allows the light to be thrown at any angle, and casts absolutely no shadow.

Price complete, including condenser, stand, 32 candle-power lamp, 10 feet flexible cord and plug to fit Edison Socket net, \$18.00

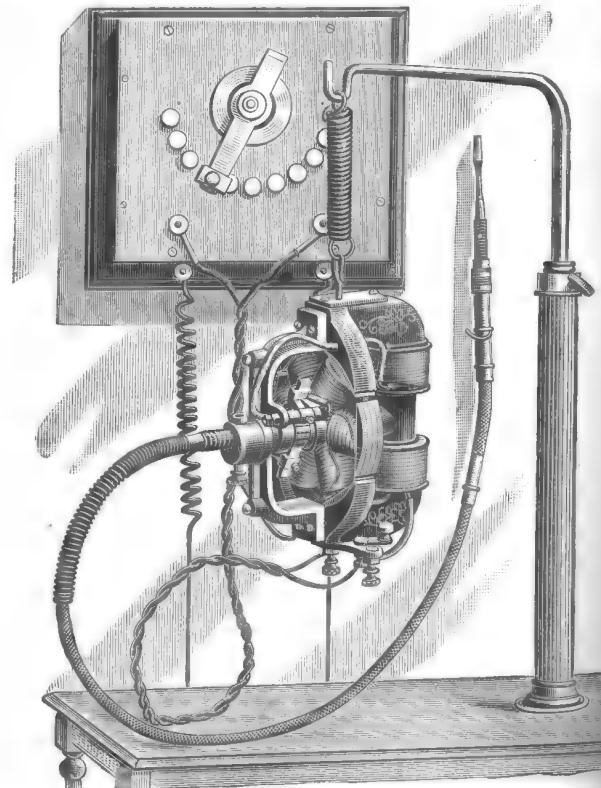
MANUFACTURED BY
EDISON MANUFACTURING CO.,

110 East 23d Street, NEW YORK.
For Sale by Chas. Truax, Greene & Co.



EDISON ELECTRIC BATTERIES.

THE EDISON SURGICAL AND DENTAL MOTOR OUTFIT.



★ COMPRISING ★

Motor with Suspension Spring and Coupling.

Flexible Shaft with Extra Flexible Extension and Hand-piece.

Regulating Motor Rheostat and Connecting Cords.

Adjustable Standard with Bent Arm.

Complete Price, Net, \$42.00.

PRICES OF SEPARATE PARTS.

Motor with Coupling and Suspension Spring

Flexible Shaft with Extra Flexible Extension and Hand-piece

" " with Handpiece but without Extra Flexible Extension

Adjustable Standard with Bent Arm

Regulating Motor Rheostat

Battery of 6 Edison-Lalande cells, porcelain jars type P, with charge for same, which will run motor 200 hours with absolutely no attention

This battery is also suitable for Cautery work when used with a regular rheostat made specially for this purpose which could be supplied together with heating cautery cords at an extra cost of \$16.00.

Battery of 6 K cells, equipped as above battery, which will run motor 100 h



EDISON ELECTRIC BATTERIES.

EDISON CAUTERY HANDLE AND KNIVES.

We wish to call particular attention to our improved Cautery Handle and Knives. The handle is adapted for both knife and snare work and particular attention has been paid to the interior construction, so that all trouble caused by imperfect contact is eliminated—a fault so frequently found in the handles in present use.

The knives are constructed on strictly scientific principles, so that the whole energy of the battery is concentrated in the platinum tip, instead of being wasted before reaching that point.

We were induced to take up the manufacture of these knives from the fact that up to the present time there have been no cautery knives made to a definite standard. We may add that all these knives are thoroughly tested and standardized before leaving the factory and are guaranteed to give perfect satisfaction with the Edison-Lalande Cautery Battery.



EDISON CAUTERY INSTRUMENT CASE.

Leather Case containing one Edison Cautery Handle, with snare attachment, canula and platinum snare, also one each Nos. 2, 3, 4 and 5 Cautery

Net, \$16 00



ELEMENTARY PRINCIPLES OF Electro-Therapeutics

WITH 150 ILLUSTRATIONS,

PREPARED BY C. M. HAYNES, M.D.

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This volume of 512 pages contains a résumé of the elementary principles of
MAGNETISM, GALVANISM, FARADISM, FRANKLINISM.

It is especially adapted to those who are about introducing electricity into their practice, as well
to those who have given its scientific application little or no consideration.

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Complete and definite directions, collected from the best American and European authors, for the
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ELECTRICITY

AND THE METHODS OF ITS EMPLOYMENT IN REMOVING

Superfluous Hair and other Facial Blemishes

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Medical and Surgical Electricity IN DISEASES OF WOMEN AND OBSTETRICS.

By FRANKLIN H. MARTIN, M.D.

Professor of Gynecology, Post-Graduate Medical School of Chicago; Attending Surgeon to the Hospital of Chicago; Gynecologist to Charity and Post-Graduate Hospitals; Member of the Chicago Gynecological Society and the American Gynecological Society, Etc.

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McINTOSH BATTERIES.

FORMS OF ELECTRICITY.

Faradism is employed in the two forms of primary and secondary currents, often called interrupted or induced currents. This is the form of electricity in most general use, but GALVANISM, or the continuous current, is the more important, owing to its electrolytic quality, which depends upon its chemical power; this enables us to produce a more profound effect upon the vital processes and nerve centers.

These different forms of Electricity require special apparatus for their production. A Faradic Battery consists of a Helix or Coil and one or two galvanic cells, which are connected with it to produce the Faradic currents. A good Faradic Battery for medical purposes should furnish smooth and agreeable currents, the strength of which may be increased to any desired potential. It is especially important that the current used for very sensitive patients and the organs of special sense should be exceedingly soft, yet of sufficient electro-motive force to overcome the resistance of the skin and penetrate the structures beneath, without producing disagreeable shocks. The battery should be so constructed that a current of great strength can be obtained for cases requiring it, and the devices by which the currents are selected and varied should be simple and easily manipulated.



McINTOSH FAMILY FARADIC BATTERY.

Family Faradic Battery (with handles and conducting wires to patients).....\$10.00. See page 400. In response to the request of our patrons for a low-priced Faradic Battery, not so powerful, such as is offered to the public, but one made of good material, in a substantial manner and that will give a smooth, even current, suitable for family use, we have made the instrument shown in above cut.

It is not intended to do the work of the Physician's Battery, but for use in answering every purpose. It is made on the same principle as our higher priced Faradic Batteries, and is set up in a neat black walnut case, 6½ inches long, 6 inches high and 5 inches wide, and furnished with electrodes and conducting cords. All the metal parts are nickel-plated.

SEND FOR COMPLETE ELECTRO-THERAPEUTICAL CATALOGUE.



McINTOSH BATTERIES.

McINTOSH PHYSICIANS' FARADIC BATTERY No. 1.

Price to patients, with Electrodes, as
shown in cut..... \$18 00
See page 400.

Physicians' Faradic Battery No. 3. Price
to patients..... 30 00
See page 400.



A GALVANIC BATTERY

Consists of a series of cells, each containing a pair of dissimilar metal plates and an exciting fluid. These cells should be arranged in convenient shape to be easily charged and cleaned. The connections should be simple and so firmly attached that they will not become disarranged accidentally; the surface of contact between elements and connections should be comparatively large, so as to offer no obstruction to the passage of electricity; the distance between elements should be small, to lessen the resistance of the fluid, and the cells should be so arranged and connected that any one or more of the series may be used at will, since a defective element or exhausted fluid in one

in series will reduce materially the total strength of the current. This method of arrangement also enables the operator to use zinc and fluid units, thus making a battery of given number of cells more than twice as strong without recharging, as the first cells in series will always be in circuit.

TWELVE-CELL GALVANIC BATTERY

12-cell Galvanic Battery
Price, to patients.....

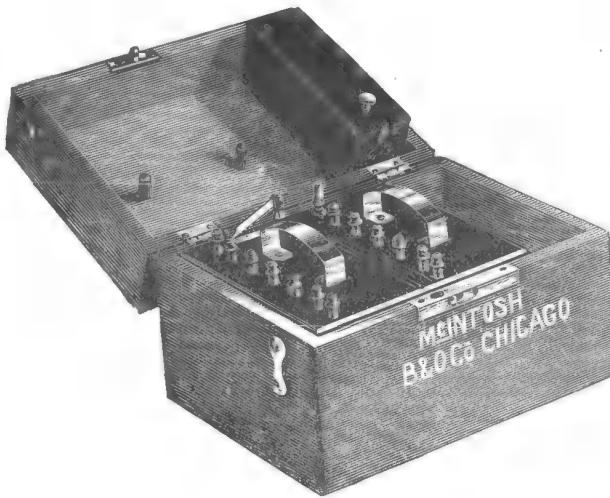
See page 400.

18-cell Galvanic Battery
Price, to patients.....

See page 400.

24-cell Galvanic Battery
Price, to patients.....

See page 400.



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McINTOSH BATTERIES.

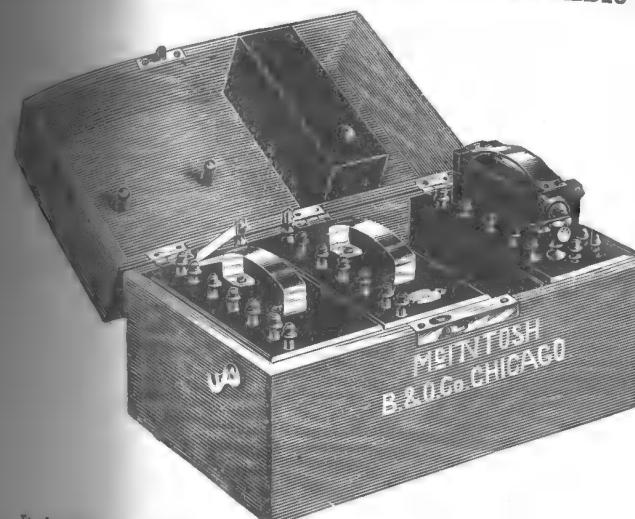
A COMBINED GALVANIC AND FARADIC BATTERY.

Consists of two distinct batteries enclosed in one case, for convenience in carrying.

A combined battery should be light in weight, so that it can be comfortably handled.

It should be simple in construction, so that those not gifted with mechanical training can understand how to manage it.

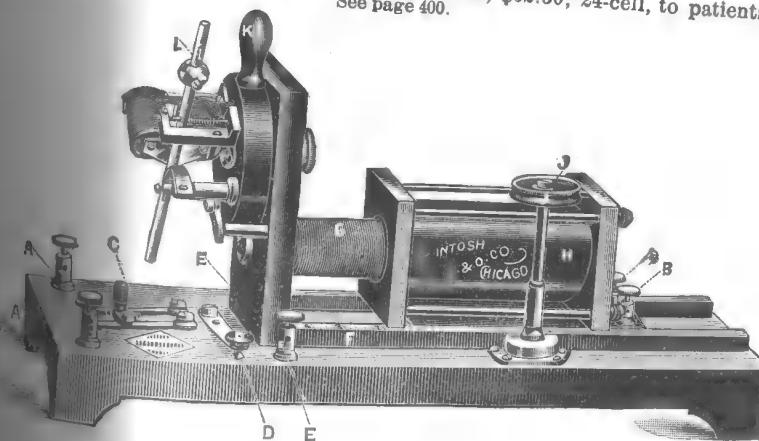
It should be easily cleaned and kept in order, so that it may be intrusted to an unskilled attendant for charging, cleaning and recharging.



It should consist of two distinct instruments in one case, so that each battery can be used the same length of time without recharging, which is not the case when the same cells must provide both kinds of electricity.

COMBINED GALVANIC AND FARADIC BATTERY.

Prices—12-cell, to patients, \$40.00; 18-cell, to patients, \$52.50; 24-cell, to patients, \$67.50
See page 400.



TRIPLER INDUCTION APPARATUS.

Used by Dr. Apostoli, Dr. Ranyier and other eminent specialists.
without cells.....

See page 400. \$100 00

CHAS TRUAX & CO. GREENE & CO.



MCINTOSH NO. 1 OFFICE
TABLE PLATE.

Where this instrument is fastened to a table or other piece of furniture not having room for the cells underneath, they may be placed in a closet or cellar out of the way, and require very little attention. Price as above, with Milliamperemeter, in Polished Walnut or Oak Case. \$105. Price, without Case. 100. Price, with Oak or Walnut Cabinet. 130. Price of Cells extra.

See page 400.



MCINTOSH NO. 2 OFFICE TABLE
PLATE.

This is an elegant piece of work, and will meet the wants of the professional where a less expensive battery is desired.

Price, as above described, in Polished Walnut Case.

Price, without Case.

Price of Cells extra.

Price, with Walnut Cabinet and 36 Diamond Carbon Cells.

See page 400.

CHAS TRUAX & CO. GREENE & CO.

MCINTOSH CABINET BATTERIES.



MCINTOSH NO. 4. CABINET BATTERY.

This elegantly fitted Office Cabinet has the No. 4 Office Table plate shown on the preceding page. It is well fitted to hold the place of honor between the unpretentious, but more expensive No. 1 Cabinet, and that peer of all inexpensive Office Batteries, the McIntosh No. 2 Cabinet Battery. In addition to the accessories of the No. 4 Table Plate, we furnish the McIntosh New Rheostat, Sponge Electrodes and Cable Conducting Cord. The Cabinet is a fine design in highly polished Oak, with Plate Glass Cover.

Price, above, without Cells. \$90.00 See page 400
Price, above, without Rheostat. 80.00 " 400
Price, above, without Cells. 80.00 " 400

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McINTOSH BATTERIES.

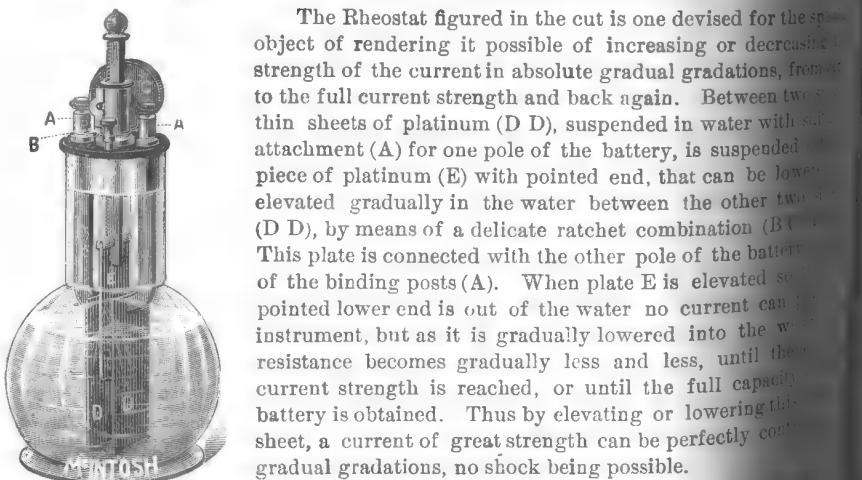


McINTOSH MILLIAMPERE METER.

It is now conceded that the Milliamperes Meter is one of the most important factors in the treatment of disease by electricity, as with it the exact amount, or "dosage," of current that passes *through* the patient is determined. Our instrument is absolutely correct, as it is graduated by standard measurements, and the greatest care is taken in manufacture. There are two separate scales; the upper one is graduated from $\frac{1}{2}$ to $\frac{1}{2}$ and the lower one from 1 to 1,000 milliamperes; so any range of current can be obtained.

Price..... \$25 00 See page 400

McINTOSH HYDRO-PLATINUM RHEOSTAT.



PATENT APPLIED FOR.

Price..... \$20 00 See page 400

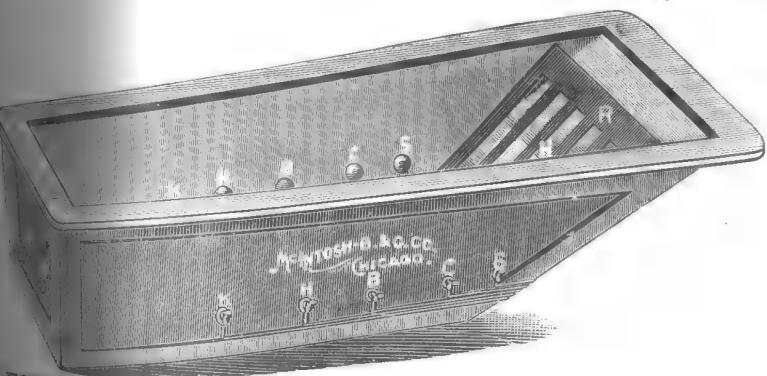
McINTOSH BATH APPARATUS.



COMBINED GALVANIC AND FARADIC BATH APPARATUS NO. 2.

This apparatus is made on the same plan as our No. 1, but less expensive. It is arranged to connect with any number of galvanic cells from 1 to 60, and has the same bath tub and electrodes as No. 1.

Price, complete as above, including 36 Galvanic Cells and 1 Paitz Battery Cell and Wood Bath Tub..... \$175 00 See page 400
Without Cells or Tub..... 125 00 " 400



ELECTRIC BATH TUB (WOOD) WITH STATIONARY ELECTRODES.
SEND FOR COMPLETE ELECTRO-THERAPEUTICAL CATALOGUE.

McINTOSH ELECTRODES.

Electrodes specially recommended for use in Gynecological Practice, by the Apostoli Method.



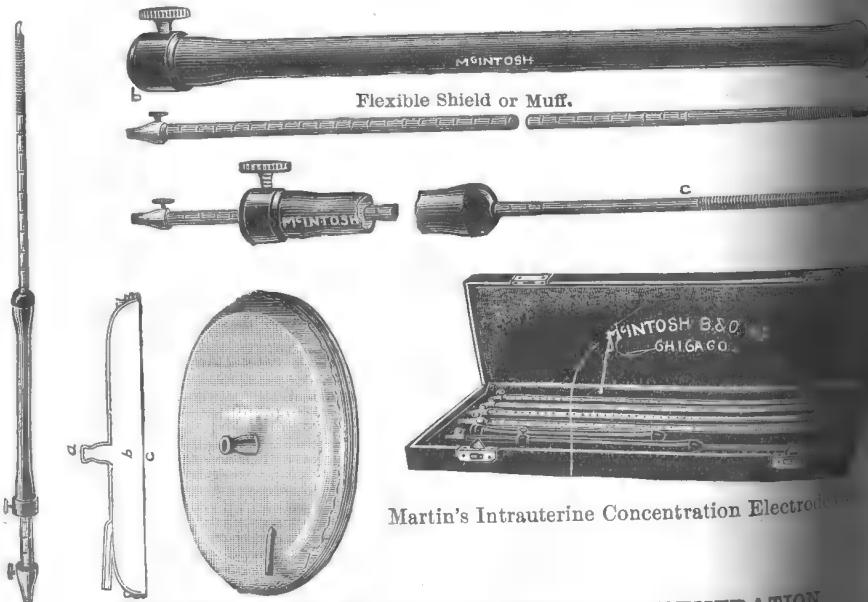
57. DR. MARTIN'S INTRAUTERINE ELECTRODE.
(Platinum Stem.)

Price



58. DR. MARTIN'S FIBROID NEEDLE.
(Platinum Point.)

Price



MARTIN'S FLEXIBLE INTRAUTERINE CONCENTRATION
ELECTRODES.

For treatment of Fibroid Tumors of the Uterus by the "Apostoli" method.
Set of four Martin's Concentration Electrodes in Plush-lined Morocco Case.
Price of one only, including the muff
Price of Rubber Muff only

See page 400.

SEND FOR COMPLETE ELECTRO-THERAPEUTICAL CATALOGUE.

McINTOSH ELECTRODES.

Martin's Intrauterine Concentration Electrode Case contains:

1	Flexible Intrauterine Electrode, 3 C. M. for 50 M. A.	
1	" " " " 3 C. M. for 100 M. A.	
1	" " " " 5 C. M. for 50 M. A.	
1	" " " " 10 C. M. for 100 M. A.	
1	Bougie, 3 C. M.	
1	" 5 C. M.	
1	Shield or Rubber Muff.	

Price for the case complete

~~Note~~—When the Martin's Intrauterine Concentration Electrodes require renewal, if the old Electrode with its platinum wrapping is returned to us, we will send a new one of same size at \$1.25 net.

These repair charges must invariably accompany the order.



59. Improved Bipolar Intrauterine Electrode, with Platinum Olive and Platinum tipped flexible muff Price, \$8 00

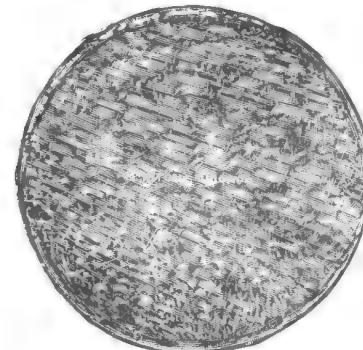


60. "Apostoli" Bipolar Intrauterine Electrode, Platinum Contacts Price, \$8 00
61. Martin's Abdominal Membrane Electrode " 4 00

~~Note~~—At the close of a treatment this electrode should be placed on a folded towel; the water remaining in it, a few grains of bichloride of mercury being used as an antiseptic; removing the water and allowing the membrane to become dry, very quickly destroys it. If the damaged Electrode is returned to us, we will renew the membrane at a cost of 75 cents net. The cost of repairs must invariably accompany the order.



BACK.



FACE.

62. DR. P. S. HAYES' ABDOMINAL ELECTRODE—SPONGIO PILINE. Price \$2 00

~~Note~~—This Electrode should be thoroughly saturated with water and placed over the abdomen upon a piece of chamois skin which has been soaked in warm water.

See page 400.

SEND FOR COMPLETE ELECTRO-THERAPEUTICAL CATALOGUE.



McINTOSH ELECTRODES.

We have no objection to meeting honorable competition, but when the physician informed that the clumsy counterfeit offered to him is "As good as" and "Cheaper than the McIntosh article, we ask him to consult our catalogue and compare our prices.

The McIntosh Battery & Optical Co. manufacture the largest assortment and most approved forms of electrodes. Their prices are lower than those of any other manufacturer.

Send for their complete Electro-Therapeutical Catalogue.

VALUABLE ELECTRODES FOR RECTAL, VAGINAL AND UTERINE TREATMENT.



5. Ball Rectal Electrode (insulated)..... Price, \$1.25



6. Rectal Electrode, nickel-plated..... Price, \$1.00



7. Rectal Electrode, insulated with Polished Hard Rubber Price, \$1.00



53. New Style Rectal Electrode, insulated..... Price, \$1.00



67. Syringe Rectal Electrode..... Price, including Cap.....

This very valuable electrode is intended to be used in connection with a Cap..... permitting the application of heat by warm water or any desired medicament to the mucous membrane, as also of such distension of the organ as may be desirable.

This Electrode is also admirably adapted for vaginal treatment.

See page 400.



McINTOSH ELECTRODES.



9. Vaginal Electrode, nickel-plated..... Price, \$1.25



10. Vaginal Electrode, insulated with Polished Hard Rubber..... Price, \$2.50



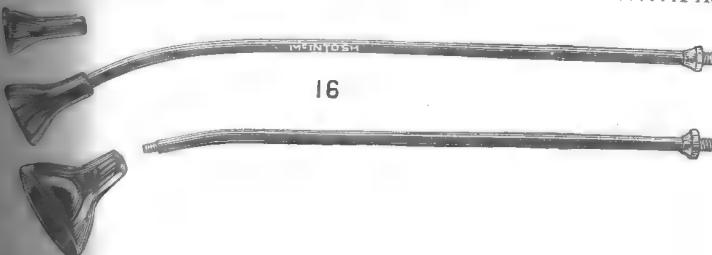
42. Vaginal Electrode for both currents, insulated in the center..... Price, \$4.00



43. Vaginal Electrode for both currents, insulated in halves..... Price, \$4.00



68. Curved Vaginal Electrode, insulated..... Price, \$2.50



70. Cup-Shaped Electrode for Uterus, three sizes, insulated..... Price, each, \$2.00

71. Cup-Shaped Electrode for Uterus, Cup only..... Price, each, 1.25

See page 400.

CHAS TRUAX & CO GREENE & CO

McINTOSH ELECTRODES.



51. Uterine Electrode, with Cup and Stem, insulated Price, \$1.
51. Uterine, Cup and Stem only Price, \$1.



54. Double Uterine Electrode with Cup and Stem, insulated Price, \$1.



20. Spiral Flexible Uterine or Urethral Price, \$1.



21. Uterine or Urethral, insulated with Hard Rubber Price, \$1.



70. Assorted Olives, for No. 21 Electrode Price, \$1.



71. Assorted Olives, for No. 20 Electrode Price, \$1.



56. Dr. Rockey's Double Uterine Electrode Price, \$1.

See page 400.

CHAS TRUAX & CO GREENE & CO

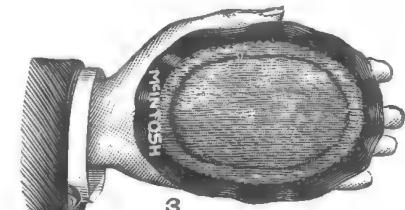
McINTOSH ELECTRODES.

SPECIAL ELECTRODES FOR USE IN ELECTROLYTIC EPILATION.



No. 2. Needle Case.

Price, \$5.00



No. 3. Hand Sponge Electrode. Price, \$1.50



C. Universal Cord Tip Connector, to connect cord tips of any battery with McIntosh Battery \$0.25

E. Universal Electrode Connector, to connect cord tips of any battery with McIntosh Electrodes 25

D. Double Connector for wires or cords 25



Dr. McIntosh's New Carbon Electrode. Price per pair \$3.00



Hard Rubber Needle Holder. Price \$1.50



No. 61. Hard Rubber Needle Holder with Interrupter. Price \$2.00



72

No. 72. Epilation Forceps, Price \$0.40

Needles for removing hair each, \$0.10 \$0.02

..... each, \$0.10 \$0.02

..... per doz. 1.00 2

..... each, 20 2

..... per doz., 2.40 2

..... each, 40 2

See page 400.

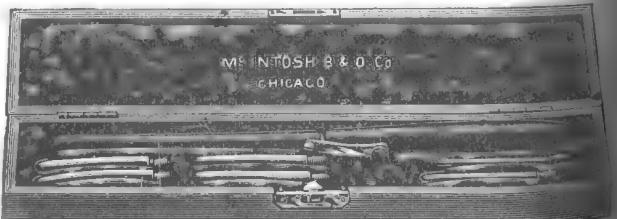
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McINTOSH ELECTRODES.



CASE NO. 1 CONTAINS

- O, Wheel and Interrupting Handle.
- A, Universal Sponge Holder.
- 7, Insulated Rectal Electrode.
- 10, Insulated Vaginal Electrode.
- 14, Insulated Tongue Plate.
- 16, Cup-shaped Uterine Electrode.
- 17, Metallic brush.
- 20, Spiral Flexible U. Electrode.
- 21, Inflexible U. Electrode.
- 28, Laryngeal Electrode.
- 31, Ear Electrode.
- 34, Eye Cup Electrode.
- 35, Hair Brush Electrode.
- 49, Two Needles and two-strand Holders.
- Morocco-covered, Velvet-lined Case.



UTERINE DILATOR CASE.

Price.....

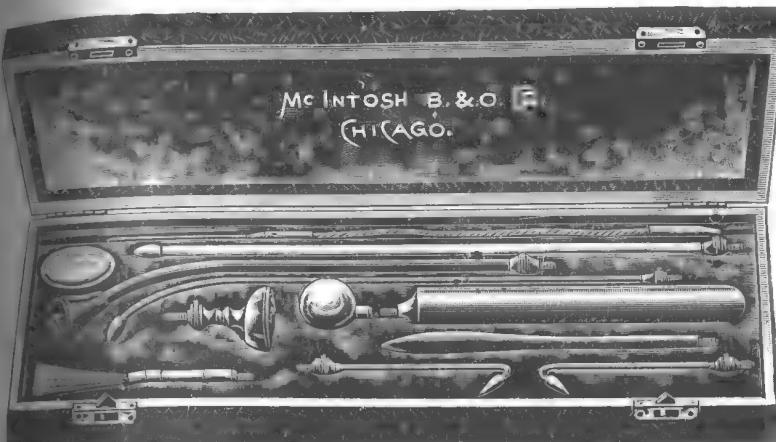
See page 400.

GENERAL ELECTRODE CASE, No. 1

Price.....

Our general electrode cases contain an assortment of electrodes, including those most frequently needed by the practitioner. Any special assortment may be furnished in case order.

McINTOSH ELECTRODES.



GENERAL ELECTRODE CASE NO. 2.

Price..... \$12 50

CASE NO. 2 CONTAINS

A, Universal Sponge Holder.	\$1 00
6, Small Rectal Electrode.	1 00
9, Vaginal Electrode.	1 25
21, Urethral, Insulated.	1 00
16, Cup-shaped Uterine Electrode.	2 00
17, Metallic Brush.	75
20, Spiral Flexible U. Electrode.	1 00
26, Duchenne's Points, one pair.	2 50
32, Ball Electrode.	50
33, Disc Electrode.	40
49, One Needle and Holder.	1 15
Morocco-covered, Velvet-lined Case.	4 00



GENITO-URINARY ELECTRODE CASE.

This case contains metallic sound, flexible and inflexible urethral electrodes and eleven olives, numbered from 10 to 32, French scale, all contained in a velvet-covered case, 12 inches long, 3 1/4 inches wide.

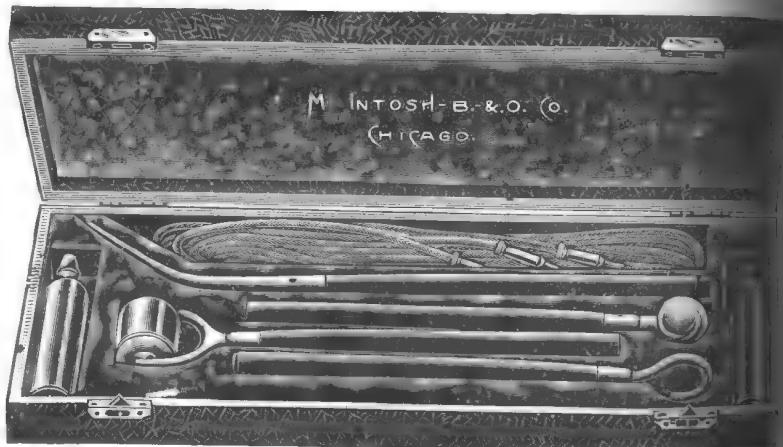
See page 400.

McINTOSH ELECTRODES.



THE McINTOSH ELECTRO MAGNET.

Complete, with extra stylus and cords, in velvet-lined morocco case. Price.....
Price, with No. 1 Grenet cell.....



STATIC ELECTRODE CASE.

This case contains one pair static cords and handles, one static point electrode, one roller, one hook and one ball electrode. Price.....
Insulating Platform, carpeted, 21x27 inches, with hard rubber insulators.....
8. Static Crown for head breeze (nickel-plated with chain).....

ATKINSON'S ELEMENTS OF STATIC ELECTRICITY.

Price by mail postpaid, \$1.50.

This very valuable little work by Philip Atkinson, M. A., Ph. D., will be well worthy of careful study, by those persons who desire to acquaint themselves with the principles of the science as well as by students of science who desire to refresh their memory of the work of by-gone years in the class-room or laboratory.

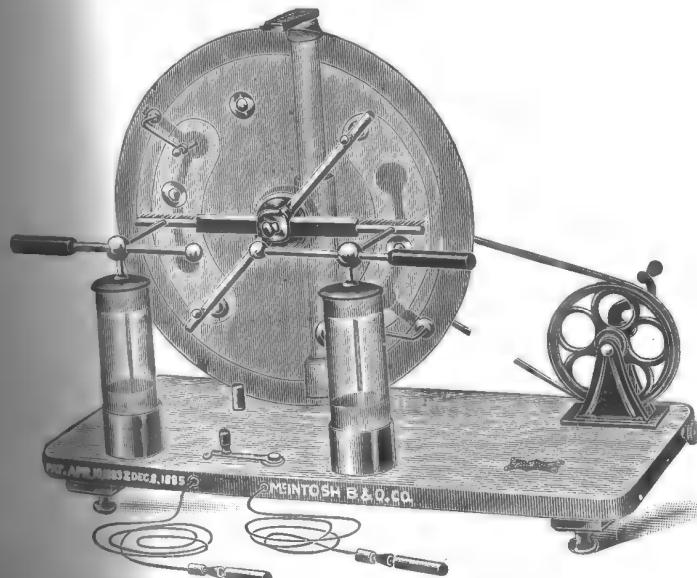
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McINTOSH STATIC MACHINES.

The value of "Franklinic" electricity as a therapeutic agent is now so well established that the day is not far distant when every electro-therapeutist will consider a good static machine as among the indispensable adjuncts of his armamentarium.

The difficulties in the way of the ready adaptability of this valuable healing agent have been overcome by the McIntosh Battery and Optical Company in the manufacture of the Atkinson-Toepler Electric Machine, under the A. Atkinson patents of April 10, 1883, and December 8, 1885. This is the only static machine which does not require an "initial charge," or other coaxing, to bring it into action. Let the operator turn the crank; the machine will "do the rest." The best! The cheapest!



ATKINSON'S IMPROVED TOEPLER ELECTRIC MACHINE.

Please remember that every genuine machine is stamped "Atkinson's Patent," April 10, 1883, and December 8, 1885.

The McIntosh Battery and Optical Company are the sole owners of the "Atkinson Patents," and we shall prosecute any party or parties found infringing our vested rights.

Price of Atkinson's Toepler Electric Machine, without glass case:
Machine with Two Glass Plates, 16 and 18 inches in diameter..... \$ 60 00
Machine with Four Glass Plates, 16 and 18 inches in diameter..... 100 00
Machine with Two Glass Plates, 25 and 28 inches in diameter..... 125 00
Machine with Four Glass Plates, 25 and 28 inches in diameter..... 200 00

See page 400.



McINTOSH STATIC MACHINES.



ATKINSON'S TOEPLER ELECTRIC MACHINE.

WITH GLASS PROTECTING CASE.

Price of 4-Plate Atkinson-Toepler Electric Machine, as shown in abovecut, without attachment for Electric Motor.....
 Price as above with attachment for Electric Motor.....
 Price, including $\frac{1}{8}$ H. P. Motor, for use either with Battery or Incandescent circuit
 Price, including 6-volt, 150-Ampere Storage Battery to operate above.....
 Price, including 24 Hussey Patent Blue Stone Batteries to charge above Storage Battery.....

See page 400.

SEND FOR ELECTRO-THERAPEUTICAL CATALOGUE.



FLEMMING'S
LATEST IMPROVED ELECTRO-THERAPEUTIC APPARATUS AND
BATTERIES.



No. 1. Flemming's Electro-therapeutic gynecological Wall Cabinet comprises the following accessories, aiding in eliciting or modifying galvanic or Faradic currents, or both currents combined, at pleasure.

Fig. 1. The Massey-Flemming Current Controller, for varying the galvanic current derived from any kind of battery cells or from an incandescent light circuit at will, by rapidly increasing or decreasing the resistance in the circuit and without interruptions.

Fig. 2. The Flemming Mill-am-meter, for measurement of the current passing through the patient.

Fig. 3. Mill-am-meter Switch.

Fig. 4. The "De Watteville" Current Combiner, for selecting the use of either galvanic or faradic currents or both conjointly.

Fig. 5. The Commutator (or pole changer).

Fig. 6. The "Dubois-Raymond" Induction Coil, with rapid and slow interrupters and graduator.

Fig. 7. The Liquid Rheostat, for varying and softening faradic currents.

Fig. 8. The Switch, for omitting or including the liquid rheostat.

Fig. 9. The Double Switch, for selecting either primary or secondary faradic currents.

Fig. 10. The Single Switch, for starting or stopping the currents on the faradic coil and the two terminal posts a', a".
 Price, complete, without any cells... \$125 00

See page 400.

Cells furnished on special quotation.

No. 2 The Massey-Flemming Current Controller may be used in connection with or without the Mill-am-meter for varying the current of any number of cells, or for modifying the current of an incandescent light circuit for therapeutic applications, but is not serviceable in using that current for actual cautery.

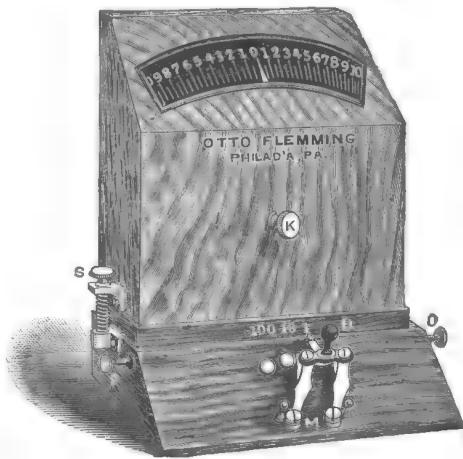
Price \$10 00

See page 400.





FLEMMING'S BATTERIES.



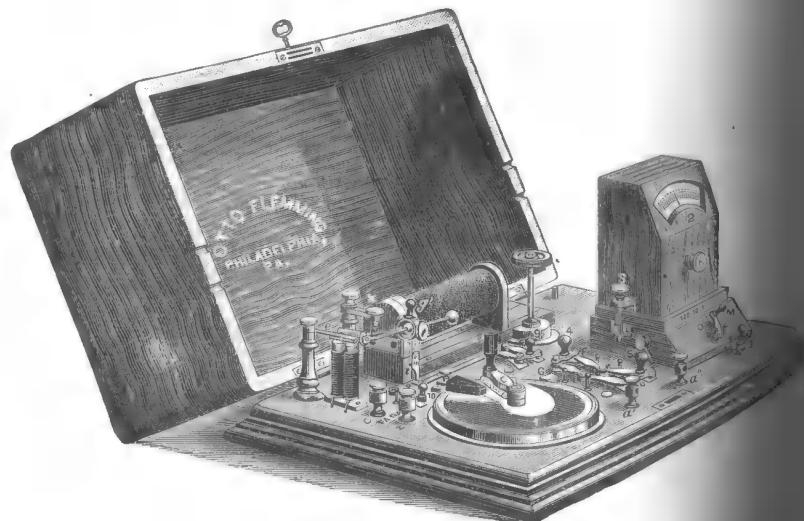
No. 3. Flemming's Mill-am-meter, measuring capacity from $\frac{1}{2}$ to 1000 M. A. See page 400.

No. 4. De Watteville's Current Combiner and Commutator. See page 400.

No. 5. Current Controller and Mill. am-meter, mounted on Polished Walnut base. 40.

No. 6. Current Controller, Mill. am-meter and Dubois-Raymond Induction Coil, mounted conjointly. See page 400.

Polished Walnut Cover, extra. See page 400.

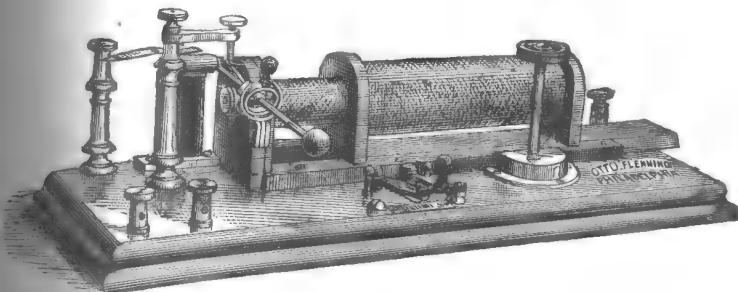


No. 7. Electro-Therapeutic Table Plate, comprising Current Controller, Mill. ameter, De Watteville Current Combiner, Commutator, Dubois-Raymond Induction Coil, with rapid and slow Interrupters, Switches and Binding Posts. \$80 00. See page 400.

No. 8. The same apparatus, including Walnut Cover. 85 00



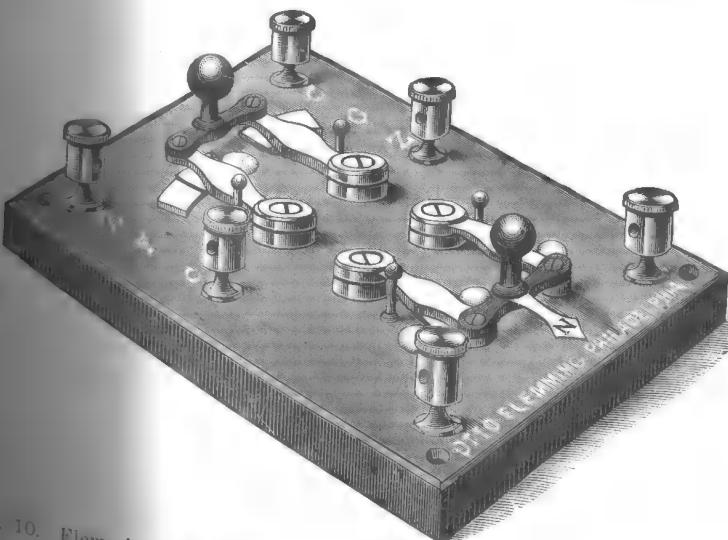
FLEMMING'S BATTERIES.



No. 9. Flemming's modification of Dubois-Raymond Induction Coil is well known as a superior apparatus for the production of faradic currents. It is provided with his original devices for controllable and rhythmical current interruptions, of valuable use in muscular contractions, and his original rack and pinion device for regulating the current strength, also with a commutator governing scales and cell switch. Almost any kind of battery will work it.

Size of base 16x8 inches.

Price, without cells.	\$30 00	See page 400
Price, with one Grenet cell.	35 00	" 400
Price, with two Axo Gonda cells.	32 00	" 400

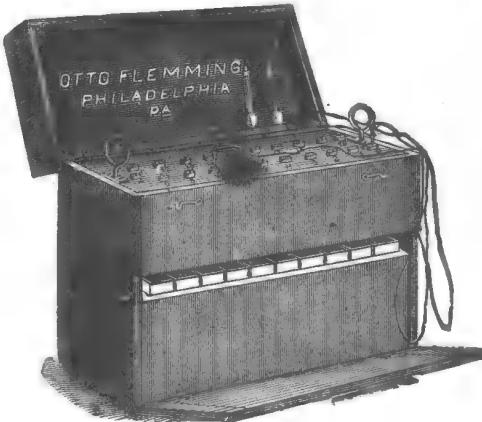


No. 10. Flemming's modification of "De Watteville" Current Combiner and Commutator is a convenient arrangement of switches for the simultaneous administration of galvanic and faradic currents whenever both of these currents are useful; the arrangement of switches will enable the operator to use each current independent of the other. The lower double switch is the Commutator, or pole changer, with the two handles always pointing towards the negative pole.

\$10 00 See page 400



FLEMMING'S BATTERIES.



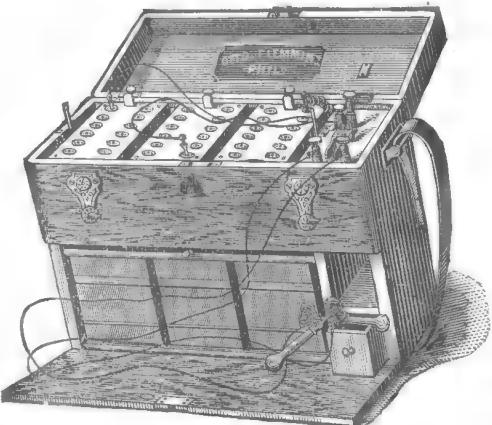
No. 11.
FLEMMING'S GALVANIC FAMILY BATTERY.



No. 12. **FLEMMING'S CIRCUIT-CLOSING NEEDLE HOLDER.**

For use in the removal of superfluous hair by electrolysis.

Price, with one-half dozen Fine Iridio-Platinum Needles \$3.50 See page 400



FLEMMING'S PORTABLE GALVANIC CELL BATTERIES FOR PHYSICIANS' USE.

This is a cheap galvanic current battery made up of light material and designed for physicians to prescribe them for patients for home use. It is also used extensively by depilators in removing superfluous hair. The Zinc-Carbon elements of this battery are generating current comparing very favorably with those of higher-priced batteries. The absence of a hydrostat board for preventing fluid splashing does not make it so poor as our Physicians' Batteries, but on special order it is provided with a hydrostat board as also with carrying strap.

6-Cell Galvanic Family Battery	
10 "	"
16 "	"
20 "	"
30 "	"
Hydrostat Board	extra
Carrying Strap and fixtures	See page 400



FLEMMING'S BATTERIES.



No. 14. Flemming's Improved Portable Galvanic Physicians' Batteries, with or without the combination of a faradic coil. The number of cells of this style of Battery are divided into sections of six or twelve.

FLEMMING'S PORTABLE FARADIC (INDUCTION) BATTERIES.

No. 00. Faradic Battery, brass finish, shellaced case, cotton-covered conducting cords, one pair of tubular tin handles, Patients gives a good current.... \$10.00
Price to Patients
See page 400



No. 15. No. 00 Faradic Battery.

No. 0. Faradic Battery, nickel-plated, polished case, with carrying handle, cotton-covered conducting cords, one regular applying sponge electrode and one tubular tin handle..... 12.00
Price to Patients
See page 400



No. 16. No. 0 Faradic Battery.

Price to Patients	
6-cell galv. battery, simple	\$20.00
6-cell galv. battery comb., rapid interrupter	30.00
6-cell galv. comb., rapid and slow interrupter	38.00
12-cell galv. battery, simple	30.00
12-cell galv. battery comb., rapid interrupter	40.00
12-cell galv. battery comb., rapid and slow interrupter	48.00
18-cell galv. battery, simple	40.00
18-cell galv. battery comb., rapid interrupter	50.00
18-cell galv. battery comb., rapid and slow interrupter	58.00
24-cell galv. battery, simple	55.00
24-cell galv. battery comb., rapid interrupter	67.00
24-cell galv. battery comb., rapid and slow interrupter	75.00
30-cell galv. battery, simple	65.00
30-cell galv. battery comb., rapid interrupter	77.00
30-cell galv. battery comb., rapid and slow interrupter	85.00
36-cell galv. battery, simple	75.00
36-cell galv. battery comb., rapid interrupter	87.00
36-cell galv. battery comb., rapid and slow interrupter	95.00

See Page 400.

10-Cell Galvanic Physician's Battery	
Simple	
10-Cell Galvanic Physician's Battery	
Combined	
10-Cell Galvanic Physician's Battery	
with slow interrupter	
20-Cell Galvanic Physician's Battery	
Simple	
20-Cell Galvanic Physician's Battery	
Combined	
20-Cell Galvanic Physician's Battery	
with slow interrupter	
30-Cell Galvanic Physician's Battery	
Simple	
30-Cell Galvanic Physician's Battery	
Combined	
30-Cell Galvanic Physician's Battery	
with slow interrupter	

See page 400.

FLEMMING'S BATTERIES.

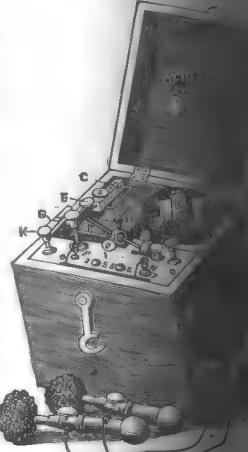
FLEMMING'S PORTABLE FARADIC (Induction) BATTERIES.



No. 17. No. 1 Faradic Battery.

No. 1 Faradic Battery, very much more complete than the former and highly finished, including silk-covered conducting cords and one pair of fine sponge electrodes.

Price to patients... \$15.00
See page 400.



No. 1 Faradic Battery, with rapid and slow interrupters, very complete and highly finished; especially adapted for the exercise of muscles in curing different forms of paralysis.

Price to patients... \$22.50
See page 400.

No. 2 Faradic Battery, finely finished; coil one inch longer and more powerful, but with vibrator only. In addition to its completeness it is provided with a Commutator or pole changer. Price to patients... \$20.00 See page 400.

No. 3 Faradic Battery. This Battery is the finest and most complete of its kind ever manufactured. It is provided with a slow and a rapid Rheostome, or current interrupter; a Commutator or pole changer; Scales by which the primary and secondary currents may be graduated with utmost delicacy or the greatest power; and with our new patent Galvanic Cell. This cell, when charged, is so made that when not in action the zinc is taken out of it altogether and placed in a vulcanite cell provided for the purpose. The aperture through which it passes is covered by a Hydrostat, making the cell perfectly fluid-tight and saving both the fluid and the zinc from the risk of splashing in transportation, or of immersion in case of upsetting. By this plan also the cell may be filled nearly to the top and the zinc be made twice the usual length; it will thus produce a strong current and last a longer time.



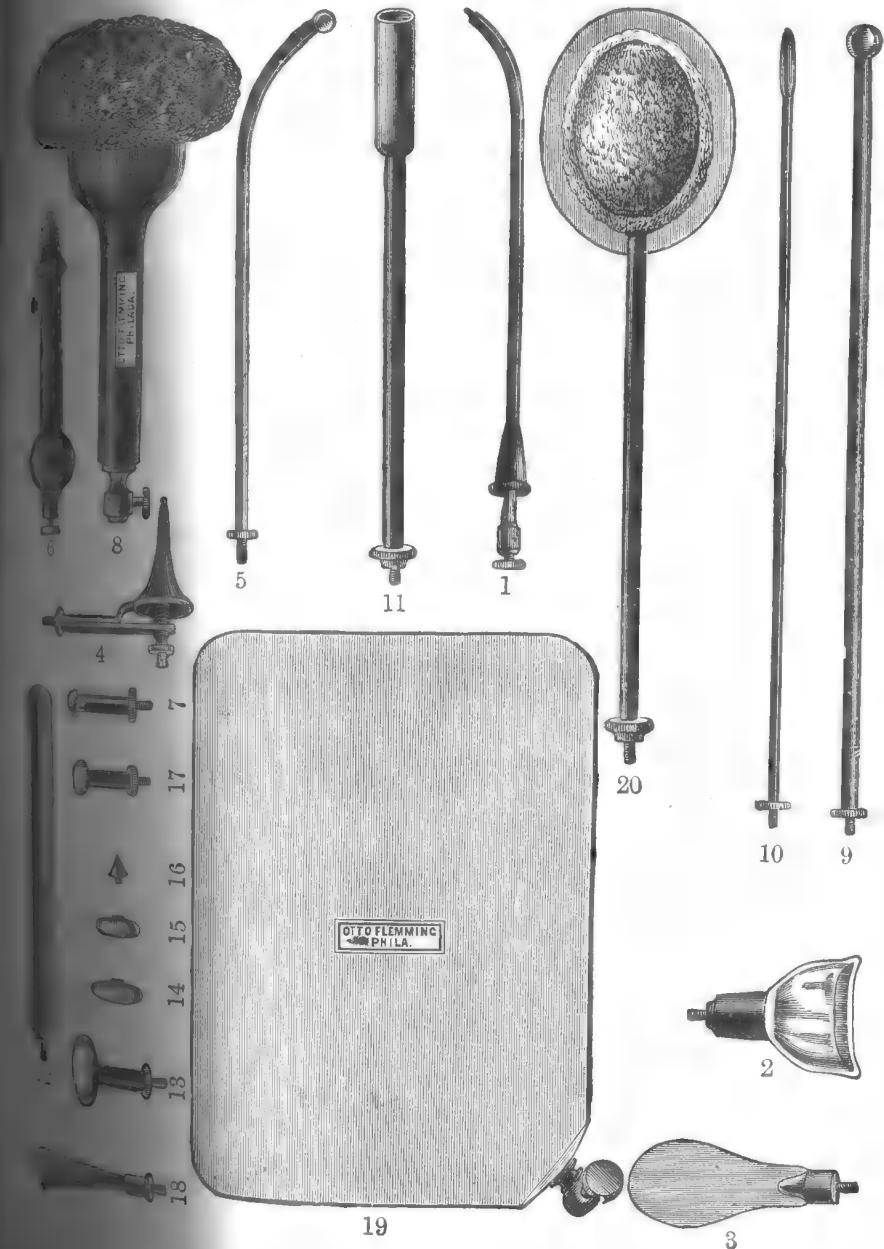
This Battery is enclosed in a handsome walnut case, $7\frac{1}{4} \times 7\frac{1}{4} \times 8\frac{1}{2}$ inches, has all its metallic parts finely nickel-plated, and weighs when charged, only ten pounds.

Price to patients, \$30.00.
See page 400.



No. 20. No. 3 Faradic Battery.

FLEMMING'S ELECTRODES.



No. 19. No. 2 Faradic Battery.

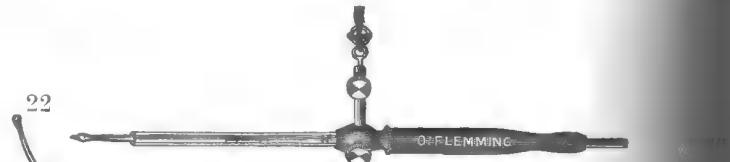


FLEMMING'S ELECTRODES.

21



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23



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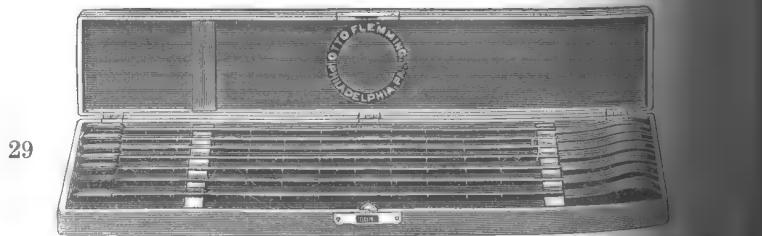
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28



29



OTTO FLEMMING 1000 ARCH ST. PHILADELPHIA, PA.

31



32

OTTO FLEMMING



FLEMMING'S BATTERIES.

FLEMMING'S ELECTRODES,

FOR VARIOUS APPLICATIONS IN ELECTRO-THERAPEUTICS AND GYNECOLOGY.

(For cuts see numbers of next pages.)

LIST PRICES; FOR DISCOUNT SEE PAGE 400.

1. Laryngeal	\$2 00
2. Eye	2 00
3. Tongue	75
4. Ear	2 00
5. Nasal	1 00
6. Interrupting handle	1 50
7. Special nerves	75
8. Large sponge	1 00
9. Uterine and rectum	1 25
10. Urethral	1 2
11. Cup-shaped, for os uteri	1 50
12. Vaginal	1 50
13. Sympathetic nerve	1 00
14. 15 and 16. Olives, points, &c	75
15. Carbon	1 00
16. Wire brush	75
17. Footplate	75
18. Spinal	1 50
19. Massey's fibroid spear of platinum or gold (suitable for the positive pole)	6 00
20. Apostoli's fibroid spear of platinum with moveable sheath of Glass or Rubber	7 00
21. Massey's monopolar rigid intra-uterine electrode of platinum	8 00
22. The same of nickel-plated copper	1 50
23. Massey's monopolar flexible intra-uterine electrode of platinum	9 00
24. The same of plated copper	2 50
25. Apostoli's monopolar intra-uterine electrode of platinum	9 00
26. The same without handle	8 00
27. This electrode is made interchangeable with Apostoli's spear, so that one handle will suit both	10 00
28. Apostoli's bi polar intra-uterine electrode, both poles of platinum	8 00
29. The same, with one pole of platinum	4 00
30. The same, both poles of nickel-plated copper	2 00
31. Massey's monopolar vaginal electrode, in 3 sizes, $\frac{9}{16}$, $\frac{3}{4}$ and 1 inch, each	4 00
32. Massey's bipolar vaginal electrodes	12 00
33. Apostoli's bulbous carbon electrodes, for superficial cauterity in bleeding fibroids, per set of seven	2 00
34. Single electrodes, each	2 00
35. Gauge drawn to full size, with numbers designating the diameter of each carbon olive in millimetres	3 50
36. Massey's rectal electrode	2 00
37. Massey's cerebral electrode	3 50

FLEMMING'S BATTERIES.

FLEMMING'S CAUTERY BATTERIES.

SINGLE-CELL CAUTERY BATTERY.

(FOR OFFICE USE.)

Consisting of one system of 10 pairs zinc-carbon plates, and a treadle arrangement by means of which the rubber cell (containing 3 quarts of bi-chromate solution) is raised or lowered.

Price of single-cell Cautery Battery, including conducting cords.....\$30 00
See page 400.

The same, provided with a Commutator for converting the Cautery into a 10-cell continuous Galvanic Current Battery.....50 00
See page 400.

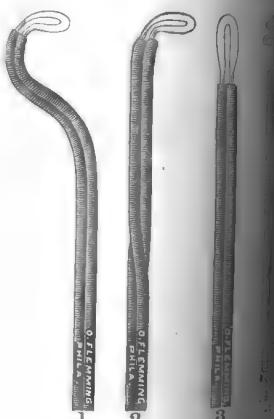


No. 22

Plain cautery handle with circuit closer and Dr. Harrison Allen's set of Naso-
geal Cautery instruments.
Cautery handle, single.....\$ 5 00 See
" " with one instrument.....6 00
Each additional instrument.....2 00
Full set of handle and 5 instruments.....14 00



No. 21



FLEMMING'S CAUTERY BATTERIES.

No. 23. Double-Cell Cautery Battery (for office use) consisting of two systems of 10 pairs zinc-carbon plates each, with treadle, two rubber cells and conducting cords.

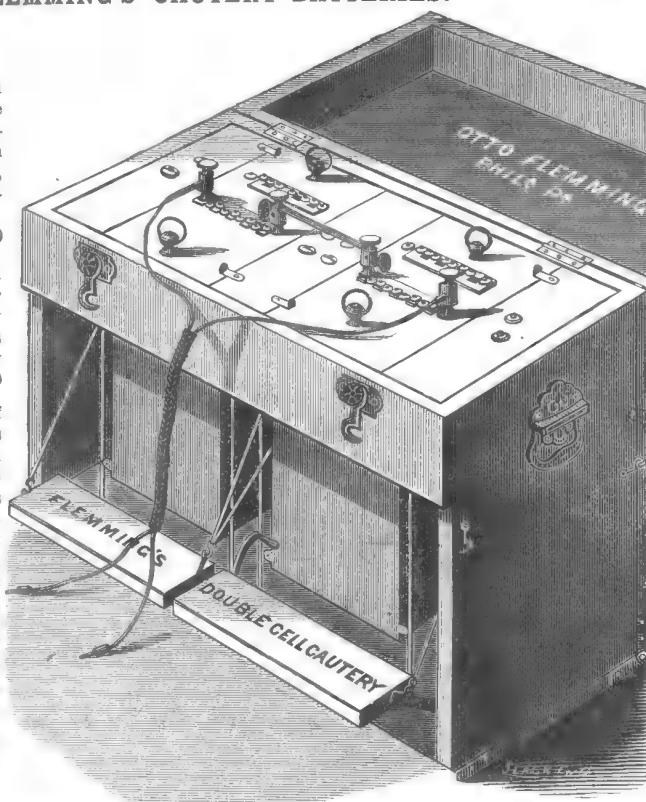
Price.....\$50 00

The same, provided with two Commutators for converting the Cautery into a 20-cell continuous Galvanic Current Battery
Price.....\$95 00

The Universal Battery of the same construction as the above double-cell Cautery, by means of two commutators serving as a Cautery, a 20-cell continuous galvanic-current battery of large quantity, and a first-class Faradic battery of slow and rapid interruptions, with Cautery Cord, one pair of Cords and Sponge Electrodes for the Continuous Galvanic and Faradic currents.

Price.....\$120 00

See page 400.

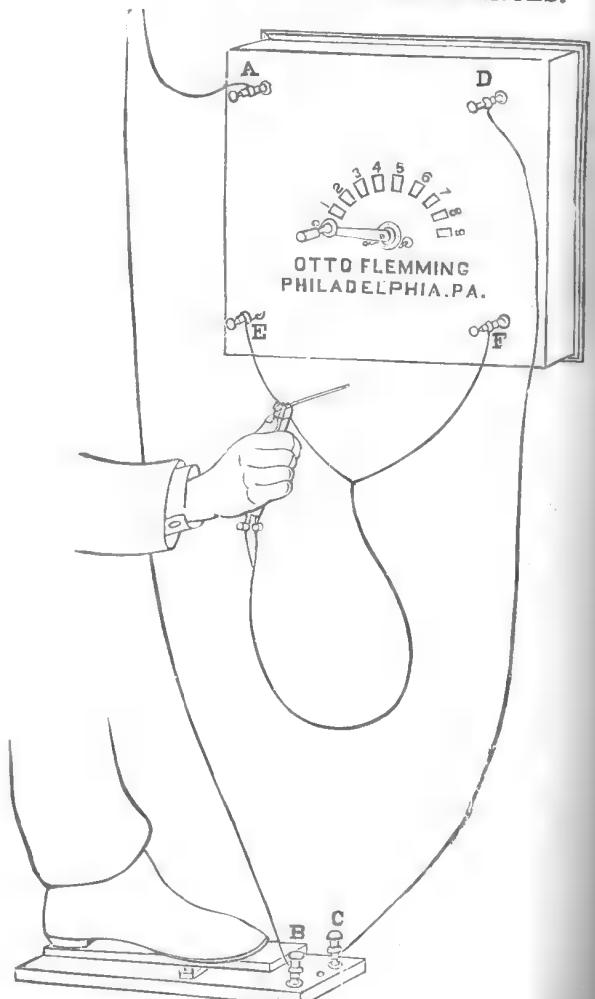


No. 24. Cautery Instruments for Naso-Pharyngeal operations, consisting of:

The Universal Hard-Rubber Handle with Circuit Closer, to which any of the instruments below may be attached.....\$5 00
The short, straight Electrode or Knife, for use in the anterior part of nares.....2 00
The Post-Nasal Electrode, for introduction behind the soft palate.....2 00
The long knife Electrodes for introduction through the nares to posterior ends of turbinated bones and pharynx.....2 00
The Spiral or Moxa Electrode.....2 00
The sharp-pointed Electrode.....2 00
Dr. J. Sois-Cohen's Pharyngeal Electrode, to protect the vault of the pharynx.....3 50
1 set of 3 rubber Nasal Specula.....1 50
Universal Rubber Handle with platinum wireloop and windlass (Erasceur).....10 00
Price, Complete in Morocco Case.....25 00
See page 400.



FLEMMING'S ELECTRIC APPLIANCES.



No. 25. Cautery-Carbon-Rheostat and Pedal Rheotome for Use in Connection with
Wires of a 110-volt Incandescent Light Circuit.

The accompanying device represents a Cautery rheostat with pedal circuit-closer, for any incandescent light circuit into service for actual cautery operations.

By means of the rheostat, the proper degree of heat on the Cautery instrument is ascertained and adjusted, and introducing the instrument cold, the current is then closed, pedal rheotome.

Price of the Cautery Rheostat and Pedal Rheotome, without any conducting cords. Conducting Cautery Cords.

See page 400.

DEvised BY

OTTO FLEMMING, MANUFACTURING ELECTRICIAN
1009 Arch Street, Philadelphia, Pa.



GALVANO FARADIC M'F'G CO'S BATTERIES.



CYLINDER TOP CABINET BATTERY.

Height, 54 inches.

Length, 39 inches.

Depth, 25 inches.

This Cabinet is furnished with forty cells of the "Fitch Perfect Battery." The accessories include a Dubois-Raymond Faradic Coil, with three interchangeable secondaries of different sizes and lengths of wire; Milliammeter measuring from 1 to 500 M. A German Silver wire coil Rheostat with coils of from 5 to 5,000 ohms resistance, a total of 17,000 ohms; Automatic Rheotome, pole changer and double current selectors by means of which any cell or series of cells may be selected. All parts are nickel-plated and mounted on a polished hard rubber base. The case may be of oak or cherry as desired, is mounted on rubber tired wheels and has a cylinder cover with heavy glass front.

\$230 00 See Page 400

2 *CHAS* TRUAX *TRY* GREENE

GALVANO FARADIC M'F'G CO'S BATTERIES.

WALL CABINET BATTERY.

Height, 23 inches; width, 28 inches; depth, 8 inches.

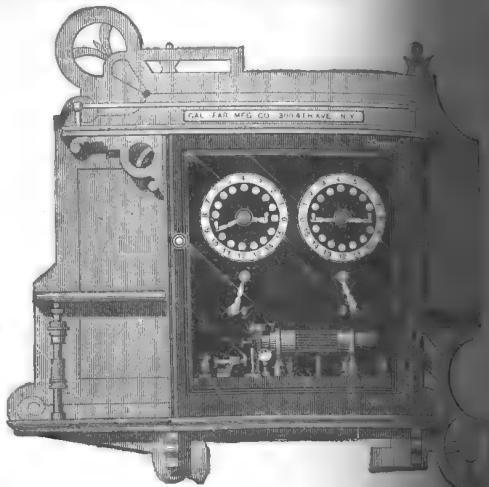
This is a complete and compact office battery, and an ornamental piece of furniture. It may be arranged for any number of cells.

The galvanic circles with double current selectors, by means of which any cell or series of cells may be used, pole changer, and faradic switch, are mounted on a vertical base of polished hard rubber 12x14 inches.

The faradic coil is placed on a horizontal base; it has primary and secondary coils, rapid vibrator and slow interrupter, and gives three variations of the current. This is furnished in a polished cherry or oak case, with beveled plate glass door.

Price, without cells, \$50 00

See page 400.



OFFICE TABLE PLATE, "Style A."

(IN CASE.)



We furnish this complete, with wires attached and marked ready to connect with
Price..... \$100 00 See p

This is a very compact and convenient form of apparatus for office use. The accessories consist of the Current Selectors; a Current Changer; a Dubois-Mond Faradic Coil, with interchangeable Secondary Coils, and having fast and slow Vibrators; the Switch; Milliammeter, measuring to two hundred and fifty milliamperes; an Automatic Rheostat, giving graduated insulations. All parts are plated and mounted on polished hard rubber, 15x20 inches. The case is of polished oak, and beveled plate glass.

CHAS TRUAX & CO. TRU GREENE & CO.

GALVANO FARADIC M'F'G CO'S BATTERIES.



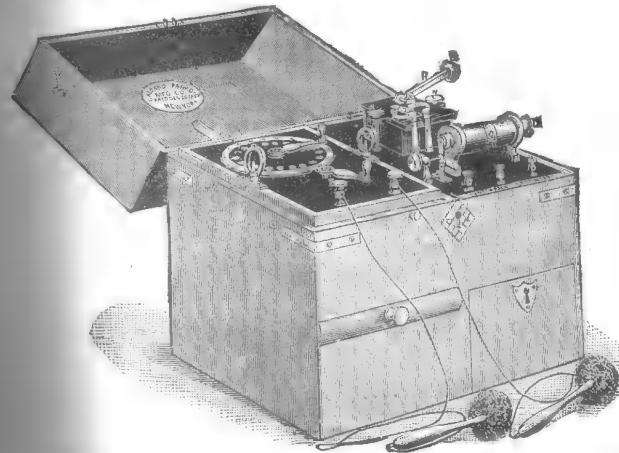
24-CELL GALVANIC BATTERY.

Price to patients..... \$50.00 See page 400
A deposit is required.

This is adapted for all purposes where a strong current is required.

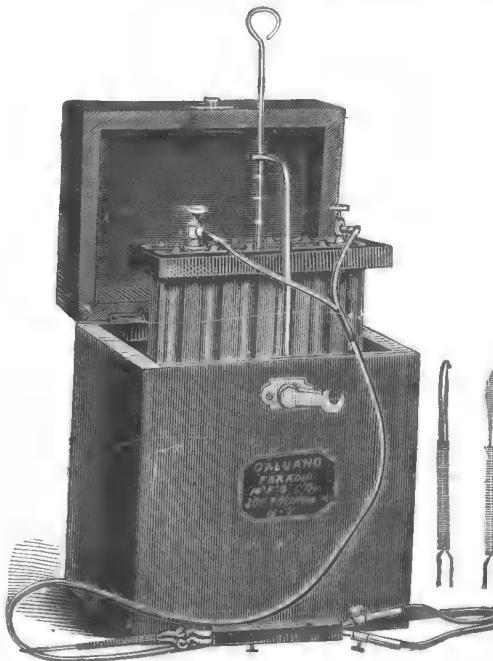
COMBINED GALVANIC AND FARADIC BATTERIES.

Our instruments are made no larger by the combination. The combination of a galvanic battery with a faradic machine (or, rather, their being contained in the same case) enables the physician to use either form of the current at will, and in this respect they are desirable especially for office practice or for the specialist.



GALVANO FARADIC M'F'G CO'S BATTERIES.

"G. F." CAUTERY OUTFIT.



THE "G. F." CAUTERY BATTERY.

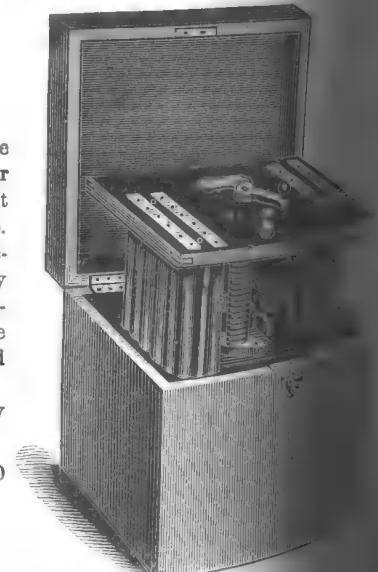
(DOUBLE ELEMENT.)

This Battery is intended expressly for office use, and will give a current of sufficient power to heat ordinary-sized electrodes or a loop. It will also light a four-volt incandescent lamp. The heat is regulated by immersion, the elements being arranged to raise and lower by means of a coarse-threaded screw. When necessary to close the cover, the base holding the elements is given a quarter turn and lowered into the drip-cells.

Furnished in a black walnut case, with heavy conducting cables.

Price, to patients.....\$30 00

See page 400.



This Battery is intended for ear, nose, throat and other cautery work. It is small and compact, can be carried about with fluid in the cell without danger of spilling, and will fully meet the requirements of the specialist. A cut shows the elements (one zinc and twelve carbons) suspended over the jar containing the fluid, the other jar serving as a drip for the elements when not in use. The heat may be regulated by immersion.

We furnish with this battery:

- 1 Universal Handle with Circuit Breaker.
- 1 Pair Conducting Cords.
- 3 Platinum Instruments.

Price, complete, to patients.....\$30 00
Battery only.....

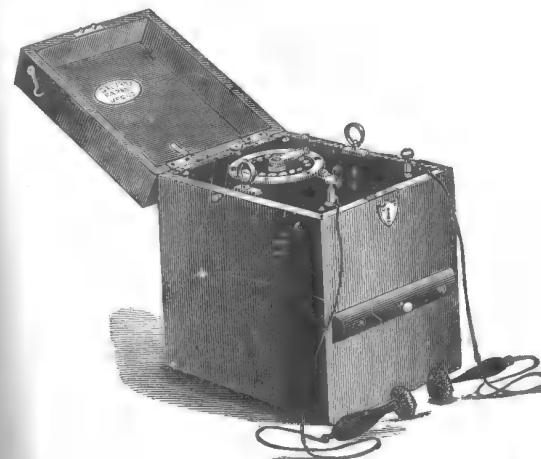
See page 400.

GALVANO FARADIC M'F'G CO'S BATTERIES.

GALVANIC BATTERIES

(IN PLAIN CASES.)

These Batteries are constructed on the same principle as our other batteries. While they are not equal in finish, they are well made, durable and reliable, and will meet the requirements of the physician who wants a good battery at a low price. Furnished in black walnut cases with handles, cords and sponge-covered metallic cells.



10 Cell Battery.....	\$20 00	See page 400
20 " "	30 00	" 400
30 " "	40 00	" 400

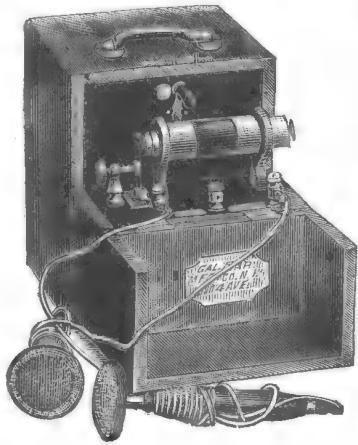
HORIZONTAL MILLIAMMETER.

This is a desirable form of meter, measuring from one to two hundred and fifty milliamperes. It is provided with leveling screws and the case is made to revolve so that the needle may be easily and quickly adjusted to zero.



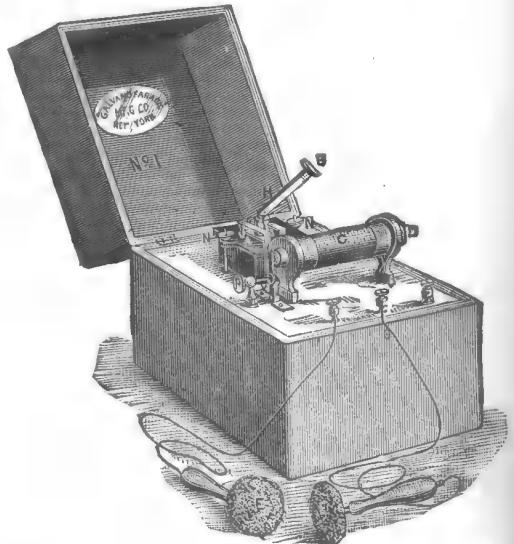
\$20 00 See page 400

GALVANO FARADIC M'F'G CO'S BATTERIES.
CLOSED CELL FARADIC BATTERY.



Price to patients..... \$12 00 See page 400

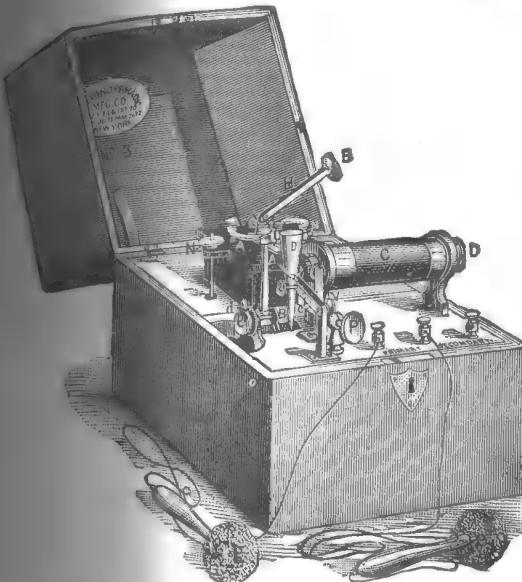
ELECTRO-MAGNETIC MACHINES.



No. 1. Price to patients..... \$10 00 See page 400
No. 2. " " 15 00

The Nos. 1 and 2 Machines are especially adapted for family use, although used by physicians as a visiting battery. They have the rapid vibrator by which current is modified so as to seem almost continuous, and can be administered without pain. They have both primary and secondary coils, and give three variations of the current, nished in polished oak or black walnut cases, with handles, cords and sponge electrodes.

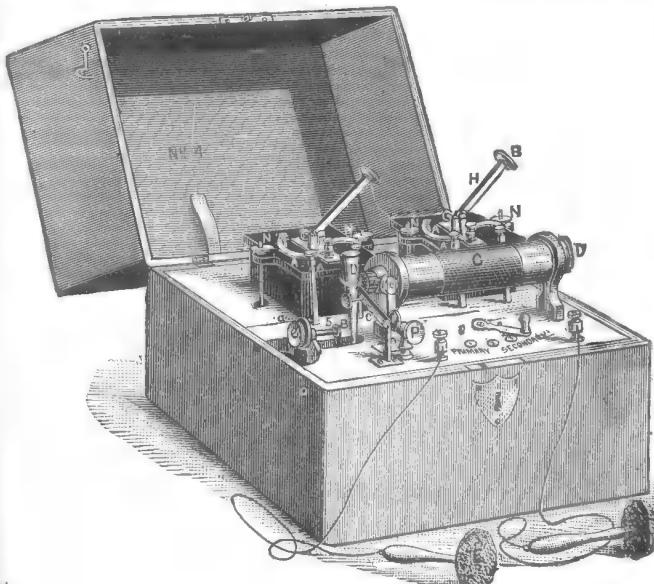
GALVANO FARADIC M'F'G CO'S BATTERIES.
ELECTRO-MAGNETIC MACHINES.



No. 3. Price to patients..... \$20 00 See page 400

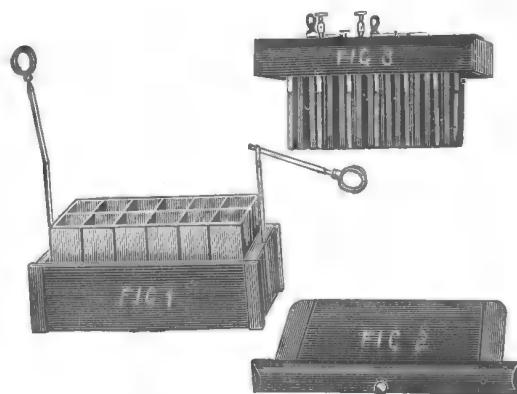
The No. 4 machine is the best for physicians. It has two cells (acting independently) In case one becomes broken or exhausted the other is in reserve. The two can be united when great power is required. This very powerful primary and secondary coils, gives three variations of current and has a rapid and strong vibrator. Finished in polished oak or black walnut cases, with handles, cords and sponge electrodes.

No. 4. Price to patients..... \$35 00 See page 400



GALVANO FARADIC M'F'G CO'S BATTERIES.

DESCRIPTION OF GALVANIC BATTERIES.



In the bottom of the box is a movable tray in which the cells are placed. (See Fig. 1.) This tray is controlled by two hinged rings which are fastened to it, and are by two lifting rings at the ends of the rubber table.

These rings, being screwed tightly down, hold the cells firmly against the hydrostat (See Fig. 2), or being loosened, allow the hydrostat to be removed from the front of the center of the box; they also serve as handles to lift the tray of cells.

The zinc and carbon plates are arranged in couples, and fastened to the base under the rubber table. (See Fig. 3.) Wires connect the elements with the button within the circles on the rubber table, each button corresponding to a cell. These wire connections, being incased, the fumes from the fluid cannot reach them; consequently no corrosion can take place, and the battery is always ready for use. To use the battery, draw out the hydrostat and raise the tray of cells, thus immersing the elements in the fluid. To bring any required number of cells into the circuit, turn the current selectors to the figures marked on the circles. Before the selector leaves one button it rests on the next, thus insuring a gradual increase of the current without the possibility of a shock. All of our Galvanic Batteries are provided with a commutator or polarity changer. The hydrostats are perfect, and these batteries can be carried about without danger of spilling the fluid.

PRICE LIST OF GALVANIC BATTERIES.

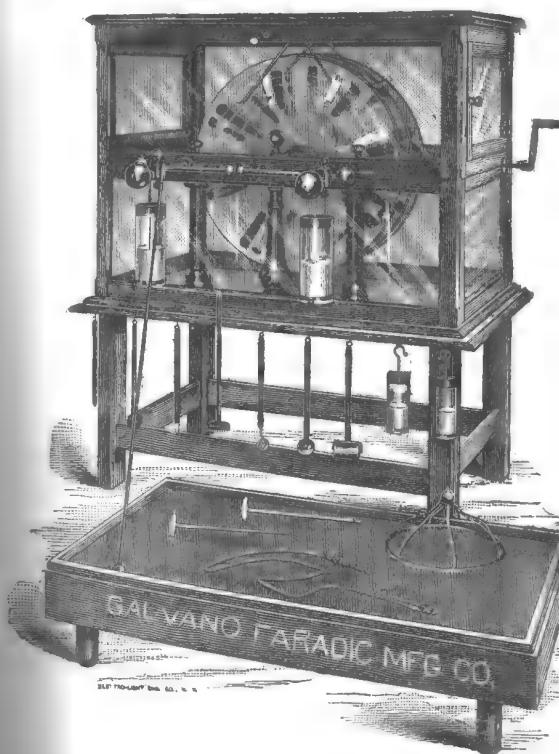
12-cells, to patients.....	\$30 00	See page 400
16-cells, "	35 00	" 400
24-cells, "	50 00	" 400
32-cells, "	60 00	" 400
36-cells, "	70 00	" 400



GALVANO FARADIC M'F'G CO'S BATTERIES.

IMPROVED WIMSHURST STATIC MACHINE.

Of all the various constructions of statical machines, this type is the most reliable. It can be started immediately and in any weather.



Furnished in handsome antique oak case, with six 27-inch revolving plates, three sets Leyden jars with attachments for giving the induced current, insulated platform, starting rod, crown for head breeze, and set of electrodes (shown on opposite page). Height, 68 inches; length, 52 inches; width, including poles pieces, 44 inches. Complete.....\$400 00 See page 400

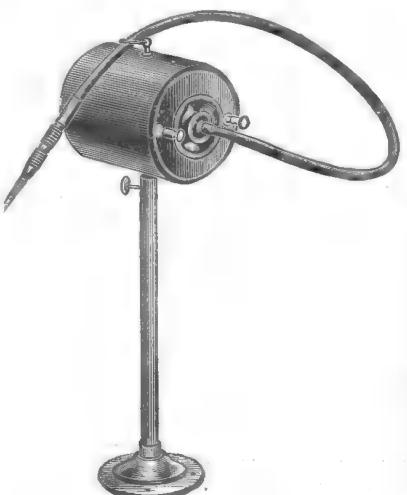
These machines are shipped entire and ready for use.

GALVANO FARADIC M'F'G CO'S ELECTRIC APPLIANCES.

CRIADO RHEOSTAT.

This instrument is the only perfect current controller yet devised. It will work equally well in circuit with the Edison incandescent current or with any number of cells connected in series. The construction of this instrument is very simple. A cup of pure carbon fastened in the bottom forms one of the terminals, the other terminal being a tapering carbon rod fastened to a metal rod, and which may be gradually raised and lowered by means of a coarse threaded screw. There are no wires to get loose, and all danger of shock is avoided. The glass should be filled with water until it touches the small sponge on the end of the carbon rod when raised to the top.

Price..... \$10 00. See page 400



THE G. F. CO'S MOTOR. (4 Volts)

This is the most desirable form of motor for Surgeons' and Dentists' use. It has a point and will start from any position. The parts are encased in a dust-proof cylinder. Oil holes are provided to admit of oiling without taking the motor apart. The motor is usually placed on a stand and is caused to revolve with the least effort. It can, however, be suspended from an arm or be used as a storage battery.

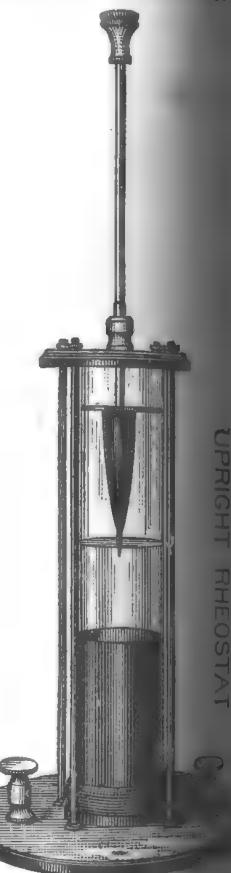
Price of motor, nickel-plated.....

Price of Stand, nickel-plated.....

Flexible Shaft and Hand Piece.....

Connecting Cords and Floor Push.....

See page 400.



UPRIGHT RHEOSTAT

GALVANO FARADIC M'F'G CO'S ELECTRIC APPLIANCES.

MOTOR AND RESISTANCE BOX.



GALVANO FARADIC MFG CO.
NEW YORK.

In the illustration are shown our new Motor and Resistance Box, to be used with the Edison current (110 volts) for Surgical and Dental purposes. The cut shows clearly the manner of connecting; the Resistance Box fastened to the wall is connected by means of a suitable cable with the ordinary pendant, it only being necessary to take out the lamp and screw in the plug attached to the end of the cable. Another cable connects the Resistance Box with the Motor and Floor Push, and by pressure of the foot the motor is instantly started into action.

The Resistance Box is provided with a three-speed switch, and by a movement of the lever the Motor may be run at any speed.

The case is of polished oak, size 11x6½x3¼, and all parts are nickel-plated. A more convenient and satisfactory outfit cannot be desired.

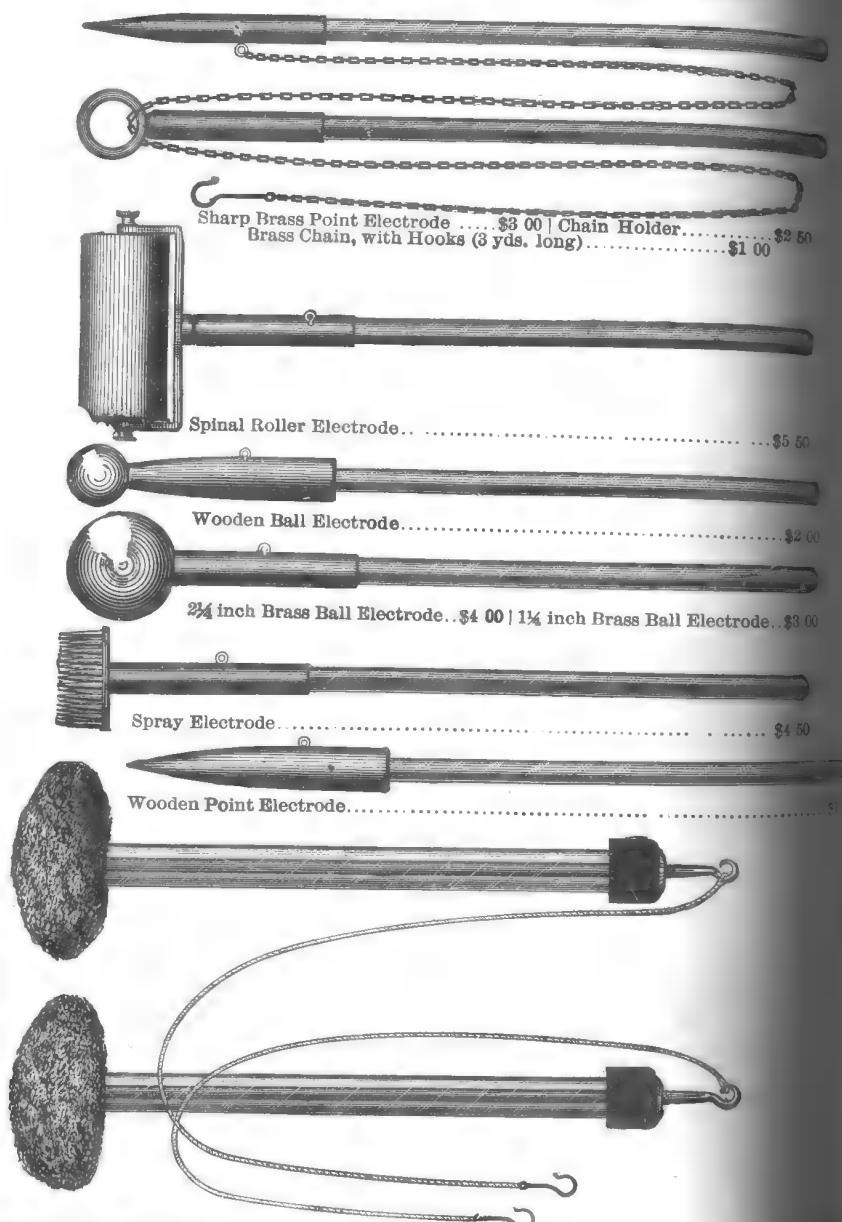
Price of Motor, nickel-plated.....	Net, \$25 00
Price of Resistance Box with cable.....	" 15 00
Price of Floor Push with cables.....	" 4 00
Flexible Shaft and Hand Piece.....	" 12 00

Nose and Throat Specialists who have the Edison incandescent light in their offices

will appreciate the convenience of the outfit which the illustration fully describes.

CHAS. TRUAX & CO. GREENE & CO.

GALVANO FARADIC M'F'G CO'S ELECTRODES.



Handles and Sponge Electrodes, with Conductors.

Adjustable Connecting Rod

List Prices, for Discount see Page 400.

CHAS. TRUAX & CO. GREENE & CO.

WAITE & BARTLETT MFG. CO., NEW YORK.

RANNEY CABINET.

Complete office cabinets and wall cabinet contain, for use of constant current, 40 cells of "Axo" Leclanche battery. The cells are the most perfect of their kind, and have stood the test of time and use, and are always furnished, unless some other form especially desired by purchaser. The current selector is universal, and any cells from the entire series may be used, and thus a great saving of the battery, and uniform wear of same are obtained. It contains also an automatic rheotome, for giving interrupted galvanic currents. The polarity changer, or commutator, is of substantial make, has rubbing contacts, and keeps in order. The German silver wire rheostat has coils from 5 ohms to 5,000 ohms resistance each, the entire resistance of all the coils being 17,000 ohms, and by means of this rheostat and the milli-ampere meter the resistance of the patient's body may be measured, or the condition of the cells tested. The water rheostat is to be used to modify the current gradually. The cabinet also includes the Dubois-Raymond style of faradic apparatus. The secondary coil can be removed and coils of various sizes and lengths of wire may be used, and the various qualities of current obtained. It is provided with a slow and rapid rheotome, and also with a contact key, to be operated by the finger, a great help in diagnosis. The instrument, also, is furnished with our milli-ampre meter, for measuring the current strength. The case contains two small closets with bevel glass doors, two large drawers and a sliding shelf, available as a desk. The lower part has doors in the back, as well as in the front, making the cells accessible and easy of inspection. We append the names of a few of the prominent physicians using this form of instrument. We furnish with this apparatus an assortment of electrodes. With the Ranney Cabinet we furnish a set of Engelmann's coils.

THE FOLLOWING ARE THE NAMES OF A FEW OF THE PHYSICIANS USING OUR PERFECTED OFFICE CABINET.

U. S. MARINE HOSPITAL, New Brighton, S. I.
 N. Y. INFIRMARY, New York.
 C. E. FISHER, M. D., Austin, Texas.
 D. V. DEAN, M. D., St. Louis.
 E. VAN DE WARKER, M. D., Syracuse.
 C. E. RIGGS, M. D., St. Paul, Minn.
 DRs. A. C. & L. R. WASS, Minneapolis.
 N. S. LINCOLN, M. D., Washington, D. C.
 E. G. ZINKE, M. D., Cincinnati, Ohio.
 A. C. KEMPER, M. D., Cincinnati, Ohio.
 G. B. ORR, M. D., Cincinnati, Ohio.
 J. TALLER JOHNSON, M. D., Washington.
 R. E. BELL, M. D., Lowell, Mass.
 R. V. SHOEMAKER, M. D., Philadelphia, Pa.

LAURA FRANKLYN HOSPITAL, N. Y.
 T. G. THOMAS, M. D., N. Y.
 POST-GRADUATE SCHOOL, N. Y.
 W. H. KING, M. D., 23 W. 53d St., N. Y.
 GERMAN DISPENSARY, New York.
 HOMEOPATHIC HOSPITAL, Buffalo, N. Y.
 H. C. LAWYER, M. D., 7 Hill St., San Francisco, Cal.
 DR. MANSFIELD, Chillicothe, Mo.
 L. WASS, M. D., Minneapolis, Minn.
 JAY OWENS, M. D., St. Paul, Minn.
 LEGRAND S. DENSLAW, M. D., St. Paul, Minn.
 CHARITY HOSPITAL, New Orleans, La.
 DRs. LONG & RIGGS, Bryan, Ohio.

SEND FOR A COMPLETE CATALOGUE.

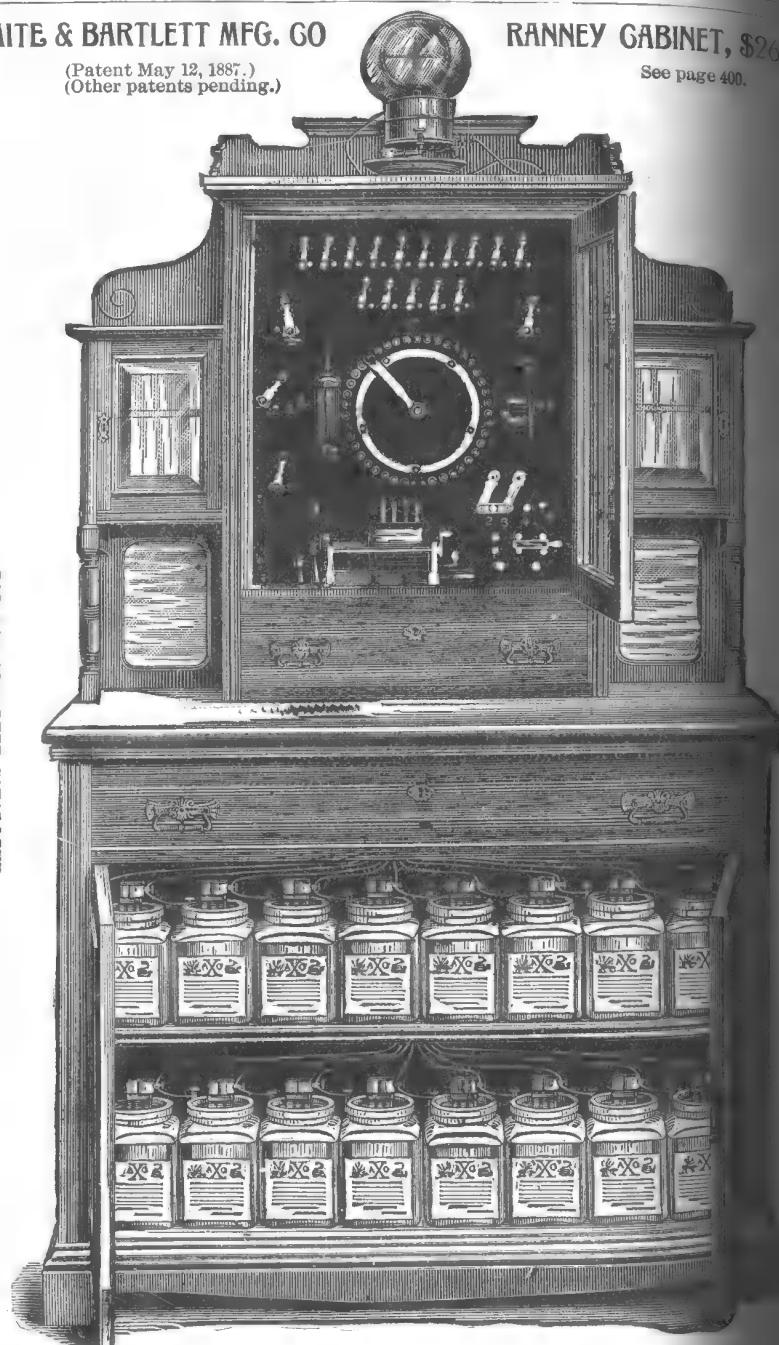
CHAS TRUAX & CO. GREENE & CO.

WAITE & BARTLETT MFG. CO.

(Patent May 12, 1887.)
(Other patents pending.)

RANNEY CABINET, \$260.

See page 400.



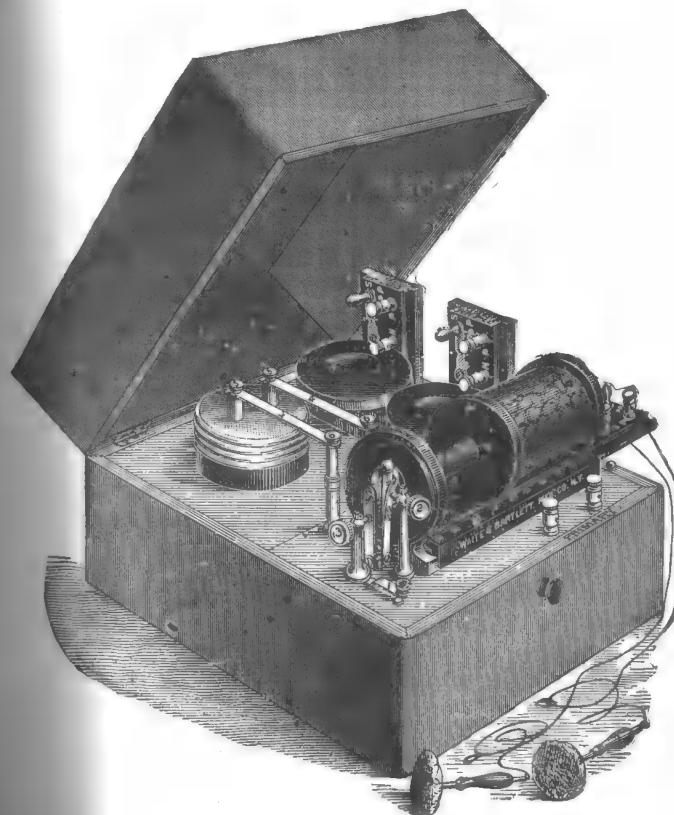
SEND FOR COMPLETE CATALOGUE.

CHAS TRUAX & CO. GREENE & CO.

WAITE & BARTLETT MFG. CO., NEW YORK.

THE ENGELMANN FARADIC BATTERY.

price, 10 patients..... \$40 00 See page 400

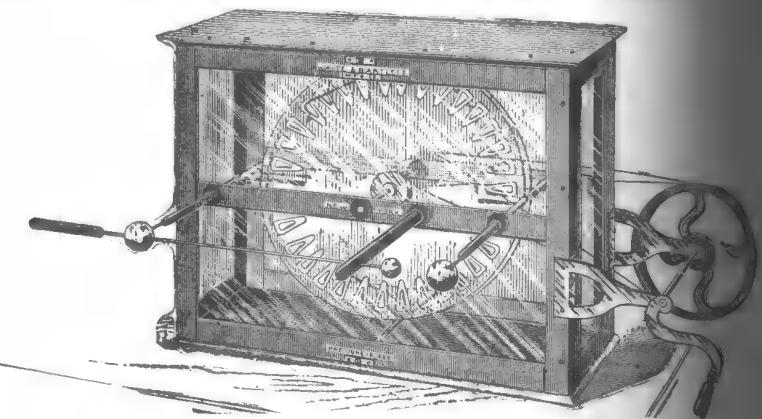


The above battery is constructed after data given in "The Use of Electricity in Gynecological Practice," by G. J. Englemann, M. D., of St. Louis. It is provided with three coils of wire of different sizes and lengths.

They are marked, respectively, Coarse, Fine and Medium, as C., F. and M. The diameter and length of wire on each coil is also marked in millimeters and meters. Use coarse coil for muscular contractions—as for contracting down a subinvolved uterus, with medium speed of interruptions. Use fine coil to relieve pain, as in cellulitis. Use medium coil when muscular contractions are to be produced, but the parts are too sensitive to allow use of coarse coil.

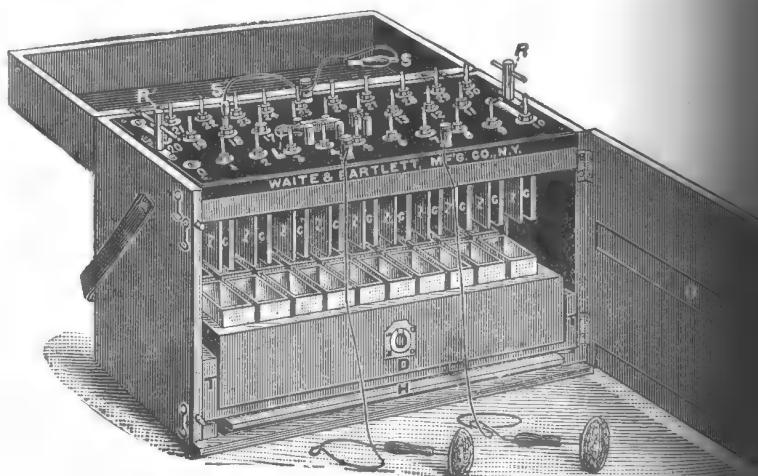
SEND FOR A COMPLETE CATALOGUE.

WAITE & BARTLETT MFG. CO., NEW YORK.



No. 122—RANNEY'S IMPROVED CHARGING MACHINE.

Price to patients.....\$66 60 See page 400
 Ranney's improved machine for charging the large Holtz machine is of great value during the sultry months of July and August when there is so much moisture in the atmosphere as to interfere with the workings of the machine. Instances that have given trouble have never failed with this charger. W. A. Hammond, M. D., of Washington; I. C. Rosse, M. D., Washington; A. L. Ranney, M. D., 156 Main Ave., N. Y.; Holbrook Curtis, M. D., 30 Madison Avenue, N. Y.; S. N. Brayton, M. D., 202 Del. Ave., Buffalo, N. Y.; Dr. Martin, 145 Bryant St., Buffalo, N. Y.; Dr. Putnam, M. D., Buffalo, N. Y., and others, are using them with perfect satisfaction and to whom we refer those interested.



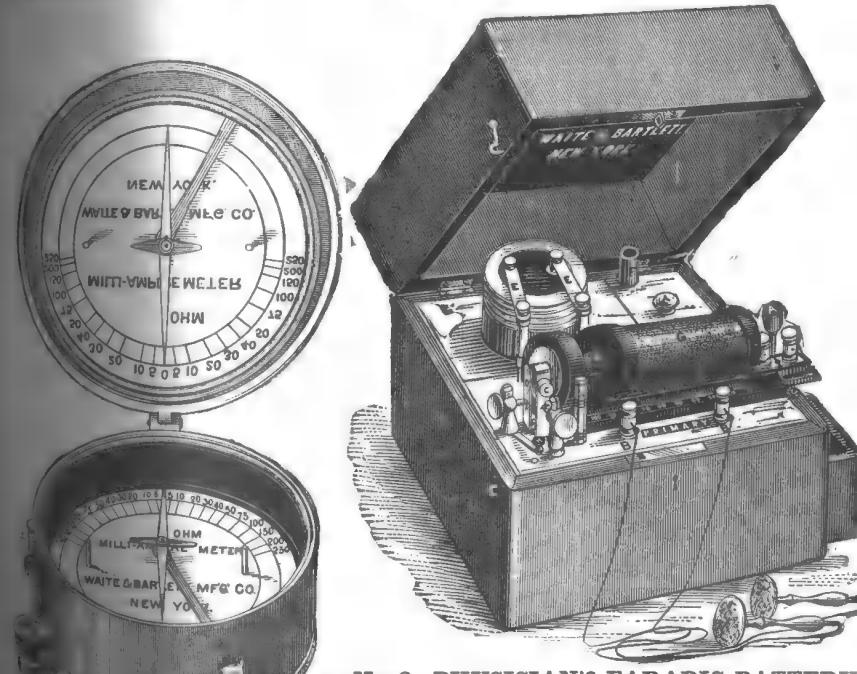
PLUG AND SOCKET GALVANIC BATTERY.

6-cell.....	Price to patients, \$12 00	20-cell.....	Price to patients, \$20 00
12-cell.....	"	"	30-cell.....
16-cell.....	"	"	See page 400.

WAITE & BARTLETT MFG. CO., NEW YORK.

The foregoing engraving shows a convenient form of portable galvanic battery. It is represented with the door open, showing the construction of the various parts. The outer tray *T*, *T*, which is lifted by means of the rods *R*, *R*, is the tray *D*, which contains the cells. This tray *D* is withdrawn from the tray *T*, *T*, when it becomes necessary to fill the cells, after which it is returned to its place.

The battery is provided with the Hydrostat board *H*, by means of which the cells are sealed, so that the fluid will not be spilled when the battery is carried about. Place this Hydrostat board on top of the cells, and close and fasten the door. Turn the rods *R*, *R*, until they turn hard. The bottom of the board is covered with rubber. The tops of the cells are beveled, and are forced into the rubber, thus securely sealing the cells. The Hydrostat board is placed under the tray *T*, when not in use. The forty cell, of the above type, will give sufficient current for Apostoli's method of creating fibroid tumors and other gynaecological work. The battery is furnished in a handsome antique oak or mahogany case, finely polished, and in five different sizes.



No. 2—PHYSICIAN'S FARADIC BATTERY.

Price, to patients.....\$20 60 See page 400

This is one of the most complete batteries for medical use made in portable form. It has two interrupters, fine and coarse; also single contact key for testing muscles or groups of muscles. The cell of the battery is made perfectly water-tight so that the solution can be carried therein without any danger whatever of spilling. The advantages of this instrument are found in no other of its size, and it needs only to be used to be appreciated.

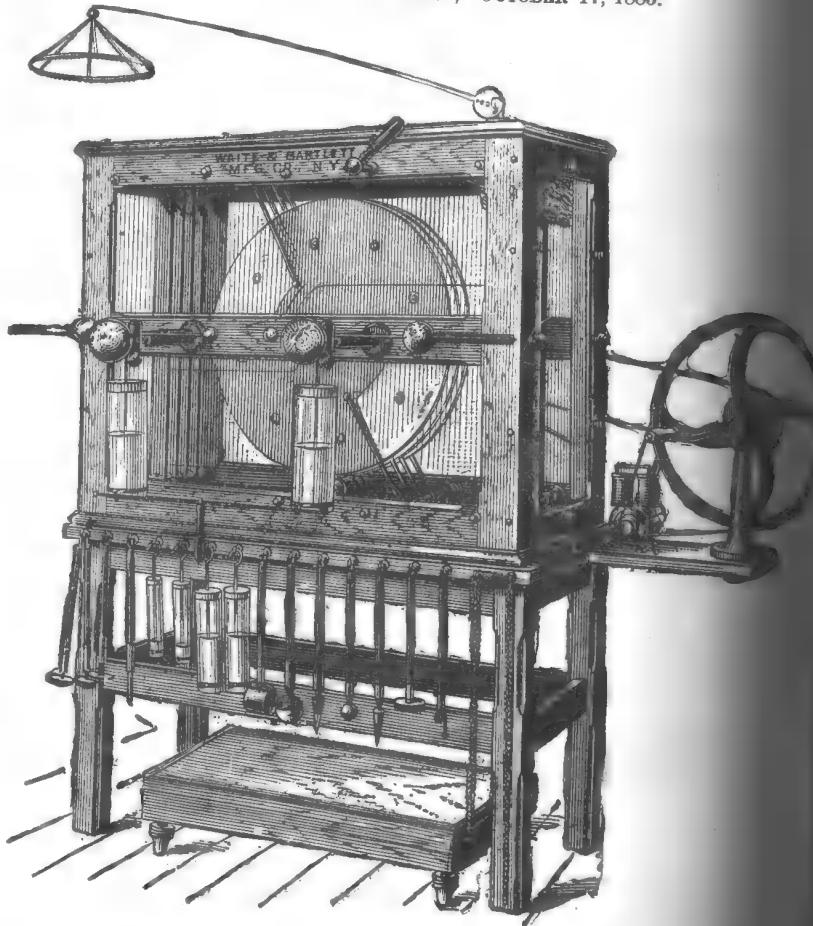
SEND FOR A COMPLETE CATALOGUE.



WAITE & BARTLETT MFG. CO., NEW YORK.

HOLTZ INDUCTION MACHINE.

As Improved by Prof. A. L. Ranney, M. D.
SEE "MEDICAL RECORD," OCTOBER 17, 1885.



SELF-CHARGING STATIC MACHINES, FOR THERAPEUTICAL USE.

With six 26-inch revolving plates and set of electrodes, set of medical Leclanche cells, with attachments for giving the induced current, and insulated plates, height, 63 inches; width from back to pole pieces, 36 inches; total length, 72 inches. Price, complete in handsome antique oak or mahogany cases, \$400.00. See page 489.

SOME OF THE PHYSICIANS USING OUR MEDICAL HOLTZ MACHINES.

PROF. A. L. RANNEY, M. D., N. Y.

PROF. W. A. HAMMOND, M. D., Washington, D. C.

PROF. H. S. MORTON, M. D., N. Y.

ALMA SANITARIUM, Alma, Mich.

SEND FOR A COMPLETE CATALOGUE.

A. MARCHAND, M. D., Leavenworth.

P. ZENNER, M. D., Cincinnati, Ohio.

J. P. GEPPERT, M. D., Cincinnati.

M. B. WERNER, M. D., Philadelphia.

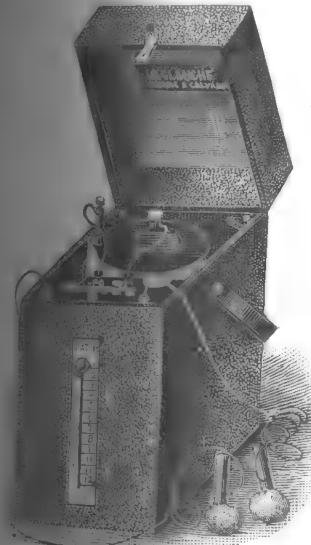
THOS. GARDINER, M. D., Minneapolis.



**J. G. VETTER & CO'S
STANDARD ELECTRO-MEDICAL APPARATUS.**

THE LECLANCHE FARADIC.

(VETTER PATENT, 1885.)

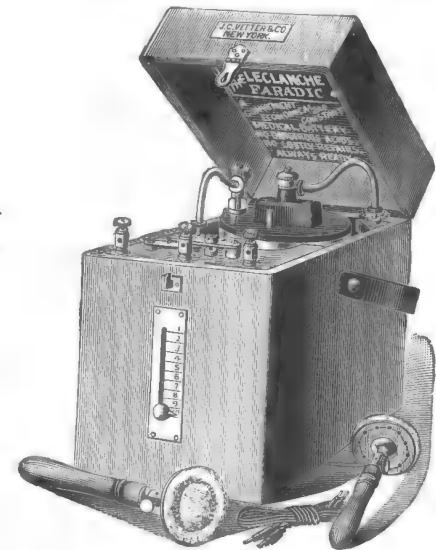


No. 1. BATTERY.

A perfectly reliable, low priced instrument. It is always ready for use; no strong poisonous or dangerous acids required; no zines to raise or lower; no fluids to be removed, and it does not corrode or lose power when not in use.

The Leclanche Faradic has three currents—mild, medium and strong—that can be regulated by our improved and perfect graduator. We make them in three styles; the metallic parts are nickel plated.

Price of No. 1, mounted in an ornamental covered case—for patient's use, with regular Leclanche Liquid Cell....Net, \$10.00
With one large No. 3 Vetter Dry Cell, Net, 11.00



No. 2. BATTERY.

Price of No. 2, in finely polished hard-wood case, and universal handle, electrodes, designed for physicians' use.

With regular Leclanche Liquid Cell,
Net.....\$13.00

With one large No. 3 Vetter Dry Cell,
Net.....14.00



VETTER & CO'S ELECTRIC APPLIANCES.

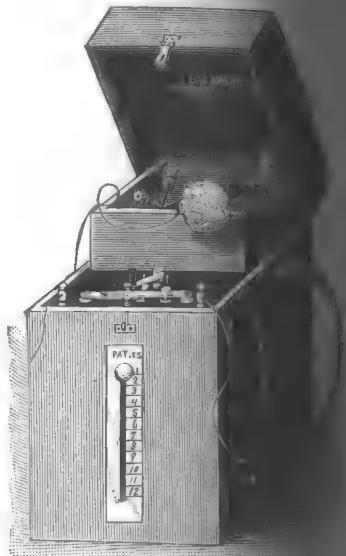
DRY LECLANCHE FARADIC.

(VETTER PATENT.)

This battery is a very powerful and superior instrument. It is supplied with four No. 2 Vetter Dry Leclanche Disque Cells, two or four of which can be used as required. Always ready for use. Encased in finely polished hardwood, and is absolutely portable.

Price..... Net, \$20 00

Full directions accompany each battery.



No. 3. BATTERY.

VETTER'S IMPROVED PORTABLE DRY LECLANCHE FARADIC BATTERY



Simple! Powerful! Always Ready.

Handsome antique quarter oak case, highly polished every side, complete with 1 pair of universal handles; 1 pair sponge electrodes (Erb.); 1 pair universal; 1 elbow extender piece; 1 oblong plate electrode and 1 pair conducting wires. Size 9x6 $\frac{3}{4}$ x3 inches.

Price complete..... Net, \$25 00



VETTER & CO'S ELECTRIC APPLIANCES.

THE VETTER PORTABLE DRY LECLANCHE GALVANIC BATTERY.

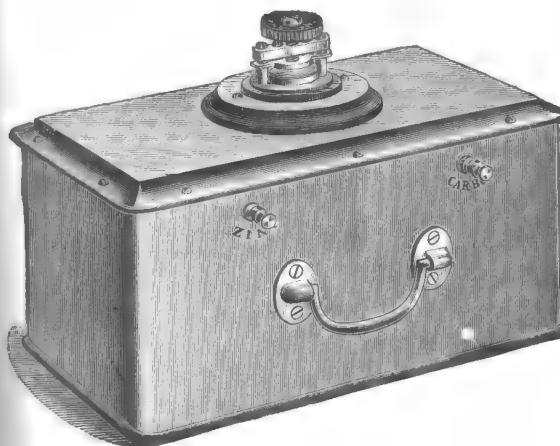
ALWAYS READY FOR USE. NO RAISING OF ELEMENTS. NO DRIP CUPS.

NO DANGEROUS ACIDS.

Does not corrode or lose power when not in use.

There is no complicated mechanism to get out of order.

It is a battery that is constant from day to day, lasting from two to four years, and when the cells have become exhausted, new ones can be procured at a nominal price, and replaced by any one, at less than the cost of repairs of batteries of other make.



A neat mahogany or walnut finished case with carbon current controller, binding posts, conducting cords, one pair of universal handles and 2 inch sponge discs. The metallic parts nickel plated.

	E. M. F. VOLTS.	SIZE, INCHES.	PRICE.
Cell	28.44	11 $\frac{1}{2}$ x 6 $\frac{3}{8}$ x 6 $\frac{1}{2}$	Net, \$25 00
	37.92	15 x 6 $\frac{3}{8}$ x 6 $\frac{1}{2}$	" 30 00
	47.40	11 $\frac{3}{4}$ x 10 x 6 $\frac{1}{2}$	" 35 00
	62.20	15 x 10 $\frac{1}{4}$ x 6 $\frac{1}{2}$	" 44 00
	79.00	19 x 9 $\frac{7}{8}$ x 6 $\frac{1}{2}$	" 52 00

VETTER & CO'S ELECTRIC APPLIANCES.



THE VETTER COMPLETE PORTABLE DRY GALVANIC BATTERY.

This battery consists of a series of 24 Vetter No. 1, Portable Dry Cells that are guaranteed to last for two years without renewal.

It has a Milliampere Meter securely mounted in the cover of the case, and a carbon current controller, pole changer, binding posts, etc., on the ebonized base.

No Galvanic Battery can be so conveniently and quickly operated as this one. It is only necessary to open the cover, connect the electrodes, when upon final closing of the circuit, the flow of current is developed, and the amount in Milliamperes plainly indicated on the meter.

The cells are so arranged that they can be easily renewed if necessary, with the aid of an electrician, at small expense and little trouble.

This complete battery is also provided with two additional binding posts to receive in circuit the current from an auxiliary battery.

A third binding post is furnished as a connection for the incandescent lamp current, as utilized by means of the Vetter Current Adapter; thus enabling the electrician to use the upper part of the battery as a switch Board, with a current controller, pole changer, and Milliampere Meter, and still have in the same instrument a complete Portable Dry Galvanic Battery for outside work, thereby saving the expense of an additional apparatus.

24 cells with Current Controller Net \$10.00

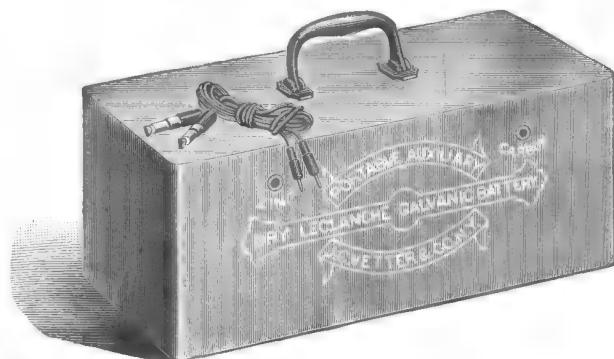
24 " " " " and Milliampere Meter Net \$10.00

VETTER & CO'S ELECTRIC APPLIANCES.

THE VETTER DRY AUXILIARY BATTERY.

These batteries are used principally to assist other batteries when a more powerful current is required. The cells are No. 1 Dry, connected in series, which terminate in binding posts and are furnished with conducting cords.

They can be readily connected with our complete Galvanic Battery.



12 cells E. M. F.	15.96 volts,	7 1/2 x 6 3/8 x 6 1/2 in.	Net price, \$10.00
18 "	28.44 "	11 1/2 x 6 3/8 x 6 1/2 in.	" 15.00
24 "	37.92 "	15 x 6 3/8 x 6 1/2 in.	" 20.00
30 "	47.40 "	11 1/4 x 10 x 6 1/2 in.	" 25.00
40 "	62.20 "	15 x 10 1/4 x 6 1/2 in.	" 34.00
50 "	79.00 "	19 x 9 7/8 x 6 1/2 in.	" 42.00

THE VETTER DRY BATTERY.



NO ACID!

NO LIQUID!

NO GLASS!

High Electro-Motive Force (1.58 volts). Low Internal Resistance (.54 Ohms). Great Recuperative Power. Neat, Light, Effective and Economical. Charged ready for use.

We make liberal discounts to physicians when ordering thirty or more of these cells.

No. 1 Portable,	size 1 5/8 x 5 1/2	Net, each, \$0.85
No. 1 Cabinet,	" 3 x 8	" 1.00
No. 2 "	" 2 1/2 x 6	" .90
No. 3 Improved Faradic,	" 4 x 7	" 1.50
No. 5 "	"	" 1.00

MOST ECONOMICAL. CHARGED READY FOR USE.



VETTER & CO'S ELECTRIC APPLIANCES.

VETTER CABINET.



GALVANIC AND FARADIC BATTERIES.

50 No. 2 Dry Cells,	one pair universal handles.
1 Milliampere Meter,	" " two-inch sponge discs.
1 Carbon Current Controller,	" " conducting cords.
1 Rheotome,	" " small disc electrodes.
1 Faradic Outfit,	" interrupting handle.

Pole Changer, Switches, etc.

Mounted in handsome quartered oak cabinet.

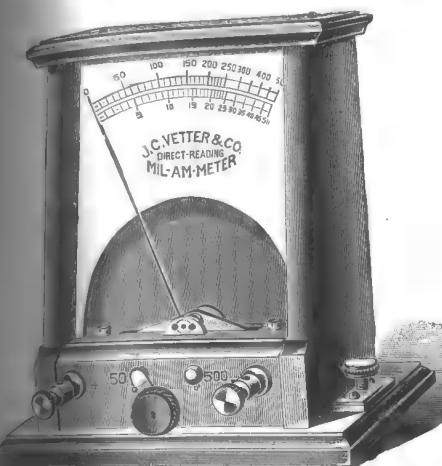
The entire apparatus, without the cells, can be used in connection with the incandescent current, by means of the Vetter Current Adapter. Price, Net, \$15 00



VETTER & CO'S ELECTRIC APPLIANCES.

VETTER MIL-AM-METER.

SPECIALLY DESIGNED FOR PHYSICIANS' USE.



This instrument is accurately calibrated and standardized. Staff of hardened steel, pivoted in ruby bearings with jeweled end pieces; records both in amperes and milliamperes. Mounted in mahogany or antique oak case.

Price.....Net, \$35 00
Same, not jeweled.....Net, 25 00

THE VETTER CURRENT CONTROLLER.

COMPACT!

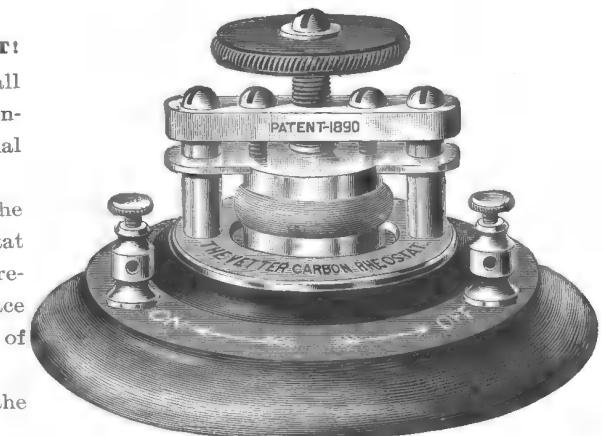
DURABLE!

EFFICIENT!

Imposes equal work upon all the cells of a battery, maintaining a uniform and equal strength throughout.

The principle adopted in the construction of this rheostat is the effect of variation in resistance which takes place in carbon with a change of pressure.

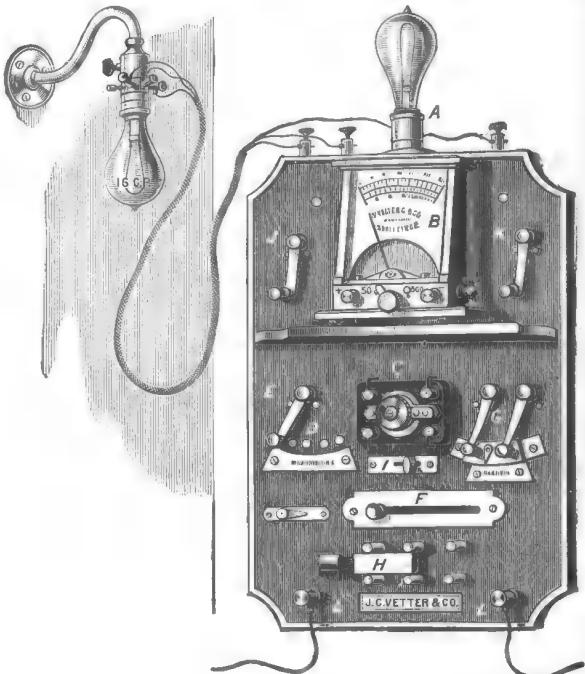
This cut is three-fourths the actual size.



Price.....Net, \$15 00

VETTER & CO'S ELECTRIC APPLIANCES.

VETTER GALVANIC AND FARADIC SWITCH BOARD
FOR INCANDESCENT CURRENT AND LECLANCHE CELLS.



A complete apparatus for controlling, measuring and operating an electric current, either from a series of cells or the incandescent system.

The Switch Board comprises a complete combination of J. C. Vetter & Co.'s improved instruments, mounted on a handsome wall or table base, as shown illustration.

- A. Vetter Lamp Socket and Current Adapter.
- B. Vetter Millampere Meter.
- C. Vetter Carbon Current Controller.
- D. Faradic Induction Coil with four distinct convolutions.

The various switches from E to K are so arranged as to give the operator complete and absolute control over either the incandescent current of 120 volts through the Vetter Current Adapter, or a Galvanic Current from a series of liquid or dry Leclanche Cells.

In ordering, state whether Edison, Westinghouse or Sawyer-Man systems be used.

Detailed instructions for manipulation accompany each apparatus.

Price..... Net.....

VETTER & CO'S ELECTRIC APPLIANCES.

THE VETTER INCANDESCENT CURRENT ADAPTER.



The Vetter Current Adapter furnishes an absolutely safe and convenient method by which the street current of 120 volts or less can be utilized, in the application of Galvanic and Faradic electricity, and for various other purposes.

This Adapter, together with the Vetter Millampere Meter and Current Controller, furnishes a complete arrangement for adapting the Incandescent Current for Therapeutic treatment.

It is also valuable to the physician as furnishing a handy and clean method by which storage batteries can be easily and economically re-charged, really at no expense whatever if the charging is done at a time when the lamp would ordinarily be in use, as the overflow is sufficient for the purpose.

It again appeals especially to the physician, as a ready means of extending a drop light where increased illumination is desired for an operation.

The Current Adapter is a development of the ordinary lamp socket, provided with a switch lever and binding post; it renders the tapping of the wire a very simple matter, and still does not interfere in the least with the illuminating capacity of the bracket.

It does not require the services of an electrician to attach the Current Adapter; any one can do it; it is no more trouble than changing a lamp, and can easily be moved from one bracket to another.

In ordering, state whether the Edison, Westinghouse or Sawyer-Man current is to be employed.

Vetter Incandescent Current Adapter with two binding posts, without switch for charging storage batteries, price..... Net, \$4 00

Vetter Incandescent Current Adapter with two binding posts, with switch, for Galvanic and Faradic work and for charging storage batteries. Price,..... Net, 5 00

Vetter Incandescent Current Adapter, with three binding posts, with switch, for operating motor of 110 volts drop lights, Galvanic and Faradic work, and charging storage batteries, price..... Net, 6 00

KIDDER'S SUPERIOR ELECTRIC BATTERIES.

(READ EMPHATIC WORDS SEPARATED.)

NOT HOW CHEAP, BUT HOW DURABLE.

Investments are usually made with an Eye to profit.

To purchase an article simply because it may appear pleasant to the Eye, is an error.

Is the Investment a profitable one, if it cost more to keep in order for 12 months than the original value of the apparatus?

What allowance is made for the loss of the use of the apparatus and cost of express transportation both ways, simply to have the maker adjust new plates.

A good apparatus should be constructed, so that new plates can be replaced by the operator.

Medical Apparatus should not be classed among toys; yet we find many batteries upon the market, at a price far below the value of good mechanical toys.

FARADIC APPARATUS.—*It is the length of wire in the coil that adds a therapeutic value, therefore the practitioner will meet disappointments in his treatment by using coils of short length of wire.*

All the leading Therapeutists recommend the coils of great length. *How is it possible to get a great length of wire on a small spool?* As the coil is the important factor in the production of the desired current, it also governs the size of the case.

Select a battery that is free from crystallization, uniform in strength and does not require new fluid for many months.

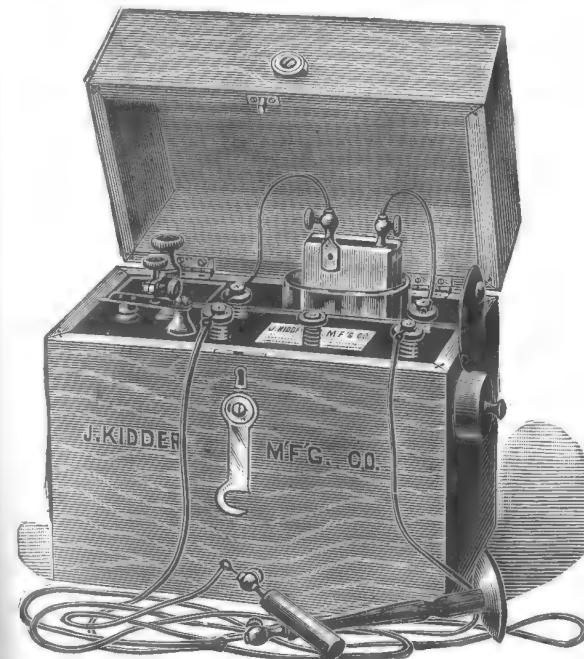
Do not purchase a battery that "needs no repairs." ALL THINGS ARE NOT EVERLASTING, and batteries no exception to the rule.

Batteries for operating Faradic or Cabinet Apparatus should be of fluid form, arranged as to prevent spilling of fluid.

Dry Batteries are numerous; and highly recommended for Call Bell and similar work, where the current is used but the fraction of a minute and then allows a rest for a long time. For operating Faradic Apparatus they are not as economical as a short period, of closed circuit, on Dry or Hermetically sealed Batteries, would be. The cells, FORCING THE PURCHASE OF NEW CELLS AT GREAT COST, are all in good order; while under the same conditions, A FEW CENTS WOULD PLACE NEW FLUID INTO A FLUID CELL and place it in first class condition.

Which shall it be? Investigate thoroughly before purchasing.

KIDDER'S ELECTRIC BATTERIES.



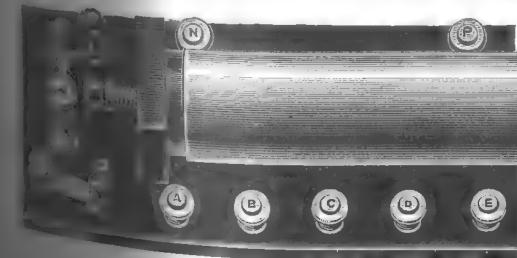
FAMILY APPARATUS, No. 6.

We also make a small apparatus with two coils and three variations in the qualities of current (see cut herewith). This is somewhat smaller than the No. 4 apparatus, but is a far better machine than any other in the market at the same price.

Polished walnut case, 8 inches long, 5 inches wide, and $7\frac{3}{4}$ inches deep. It is operated by an open narrow Jar Battery, with a small drip cell for resting elements into when raised out of the solution. Battery Jar measures $5\frac{1}{4}$ deep, $1\frac{3}{4}$ wide, 5 inches long at center, and $2\frac{1}{2}$ long at the mouth.

Complete with cords, handles and one sponge electrode.
Price to patients.....\$15 00 See page 400

COILS FOR MOUNTING IN GREAT VARIETY.



No. 5. A, Coil, producing 10 different qualities of currents, coil composed of four different lengths and diameters of wire, all mounted upon polished hard rubber.

Price to patients.....\$20 00
See page 400.

KIDDER'S ELECTRIC BATTERIES.



ELECTRO-MEDICAL APPARATUS, No. 5.

Has four differently conditioned coils, of different lengths and diameters of wire, arranged to be used in various combinations, producing 10 different qualities of electricity. Constructed in polished hard wood case, 9½ inches long, 8 inches wide, and 7½ deep, outside.

With Hydrostat Tip Battery which is always ready for use, and by tipping the plates further into, or out of the fluid, the currents from the coil can be adjusted to their degree of strength. This machine can be conveyed from place to place in a buggy, without danger of spilling the fluid; also one pair of conductors, one pair of metallic cylinders and one electrode for sponge.

Price, complete, to patients..... \$27 00 See page 400

With Open Battery, similar to the battery operating No. 4 machine,

Price to patients..... \$24 00 See page 400

Other styles in great variety. Write for prices before placing orders.

KIDDER'S ELECTRIC BATTERIES.
HIGH TENSION COILS.



The illustration represents a High Tension Coil; in a hardwood case, 8½ inches long, 5 inches wide, 2½ inches deep. Operated either by two closed bi-sulphate of mercury cells; or, to be operated by any cell desired, by uniting the wires from the cells otherwise designed to be used, to the two posts that make contact for the small closed cells. Remove the tension coil entirely from the primary. The conductors are attached to the two contact posts of the coil base; the

vibrating arrangement set in operation, by replacing the tension coil over the primary, the current is gradually increased from nothing to a strong degree. Great care is exercised in the construction of these coils, owing to the great length of wire (about 4,500 feet). Marked sedative effects are produced. Complete with one pair of conductors, one pair electrodes for sponge, and two closed cells.

Price to patients..... \$30 00 See page 400

PORTABLE HIGH TENSION COILS, APPARATUS.

Size of Case, 9½ inches long, 8½ inches wide, 5 inches deep outside when closed.

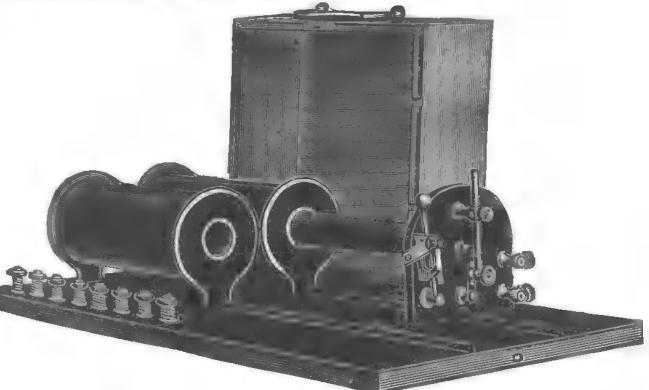
Consists of compound coils having four different lengths and diameters of wire, to be used in various combinations. The length of fine wire is about 8,000 ft., which can be used in

10 different combinations of different lengths and different sizes. The primary

field is entirely withdrawn from the coils, a most novel feature; the current can be started from absolutely nothing, and as the primary field is introduced, the current is increased. The plate of the primary coil contains a vibrator for medium and very rapid interruptions, together with a slow automatic interrupter. The case is adjusted so that the extension bottom can be turned underneath the case, and fastened to be perfectly portable. The coils can be operated from one or more muritate ammonia cells. This apparatus contains a length of wire the combinations of which are greater than any other apparatus constructed, and is such as recommended by Apostoli, Rockwell, Goelet, Tripier and others.

Price to patients..... \$65 00 See page 400

Various High Tension Coils; price, varying according to the length of wire and



KIDDER'S ELECTRIC BATTERIES.



PORTABLE GALVANIC BATTERIES. (Primary Cell.)

Can be conveyed about without spilling fluid as jars are covered.

With patent improved attachments for electing various cells without interrupting the circuit when the slide is moved. Important for many cases.

By moving one of the levers, the current is alternately closed and interrupted. Also the current can be thrown rapidly and alternately in opposite directions. These arrangements add a value to these batteries not possessed by any other manufacture.

Always constructed in polished walnut cases unless otherwise ordered.
Zinc Plates. Carbon plates. Each measures 5 1/4 in. long and 1 1/2 in. wide.
All jars are single, and of hard rubber. No expensive apartment jars.

12-Cell Battery. Case 10 inches long, 6 inches wide, and 13 inches deep.
Price with extra attachments as per illustration..... \$26 00 See page 20
Price in plain form..... 20 00

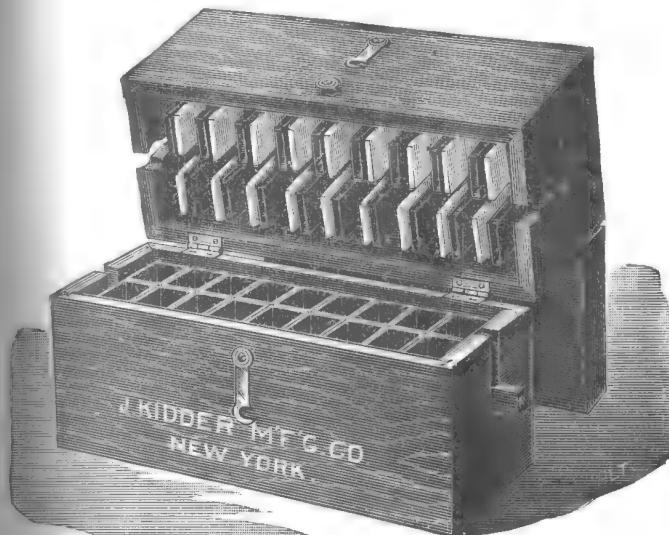
18-Cell Battery. Case 14 1/4 inches long, 6 inches wide, and 13 inches deep.
Price with extra attachments as per illustration..... \$36 00
Price in plain form..... 30 00

24-Cell Battery. Case 13 inches long, 8 inches wide, and 13 inches deep.
Price with extra attachments as per illustration..... \$48 00
Price in plain form..... 42 00

The above prices include, with each battery, two silk conducting cords and sponge electrodes.

Batteries consisting of 32, 36 or more cells adapted for hospital uses, vary in their prices according to finish, kept on hand and made to order.

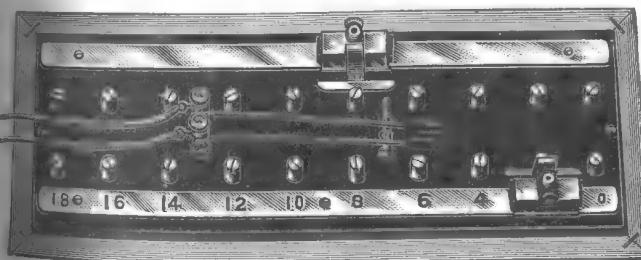
KIDDER'S ELECTRIC BATTERIES.



**PORTABLE, GALVANIC APPARATUS. CASE TIPPED.
HYDROSTAT REMOVED.**

The tray containing the jars can be instantly removed from the box, and carried to a convenient place for charging. No forcing of plates out of position by Hydrostat, preventing the immersion of plates. Each jar is single. No expensive apartment jars to be replaced, if a single jar is damaged.

Larger amount of element surface than any other make.
Zinc and Carbon plates, each, 5 1/4 inches long and 1 1/2 inches wide.
The amount of square surface of plates, represents volume of current.



TOP PLATE OF GALVANIC APPARATUS.

Showing improved Patent Attachments, for adding, or cutting out cells without interrupting the circuit. Current Reverser for changing the polarity without disconnecting the electrodes. Interrupter for breaking the circuit when desired. Absolute control of the current without disturbing conductors or electrodes.



KIDDER'S ELECTRIC BATTERIES.

CABINET APPARATUS.

(Outside measurements, height 37 in., width 30 in., depth 23 in.)

A cabinet without a cell selector is imperfect, as a defective cell in the cabinet cannot be cut out, and prevents the passage of the current, rendering the cabinet useless. With cell selectors this is impossible.



Elegant in design, complete in manipulating currents, and constructed in best workmanship manner. The trays containing the cells can be withdrawn from the cabinet without disturbing a cell.

Price.....\$150.00
See page 400.

We furnish each cabinet with 43 cells of improved form; each cell having an electro-motive force of 1.25 volts with an internal resistance of .5 of an ohm, never greater. Requires no attention whatever, from two to three hours, and then only for the removal of zines and sal-ammoniac which can be supplied at nominal cost.

For operating on automatic interrupter, use separate cells; automatic interrupter, galvanic current, to assist in polarizing galvanic cells.

The cabinet is supplied with a compound circle for 40 cells (electroshock), polarity changer, automatic interrupter, cut out, galvanoscopy, necessary switches and cord posts; also a fine faradic coil (10 current), circle selector, polarity changer, necessary switches and cord posts.

A HANDSOME PIECE OF CABINET WORK FOR THE PHYSICIAN'S OFFICE.

The original inventors of the only Compound Circle cell selector. No poor imitations. Cabinet of various designs in stock and to order.



KIDDER'S ELECTRIC BATTERIES.

GALVANO-CAUTERY APPARATUS.

These Galvano-Cautery Batteries are unequalled as to their efficiency and convenience of operation.

The elements are made movable horizontally in their relation to the fluid of the cells, so as to substitute, continuously, battery fluid which has recovered its allotropic power from having been released from action.

One of these forms, consisting only of two cells, each 3 1/4 inches long, 2 1/2 inches wide and 4 1/2 inches deep, will retain a platinum wire, No. 19, at a white heat, constantly, for more than a quarter of an hour. (See cut.)

PATENTED 1876.

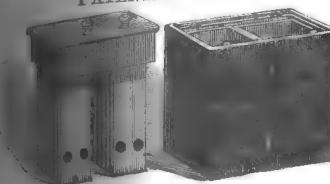


FIG. 1.

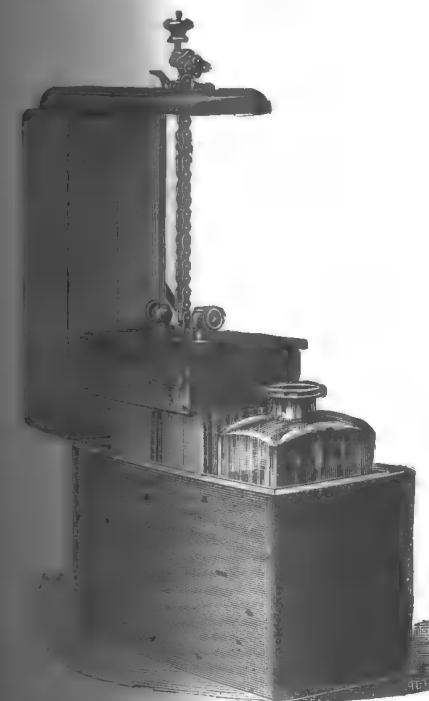


FIG. 2.

The price of this form of battery in polished walnut case, 5 1/4 inches long, 4 inches wide, and 5 1/4 inches high, all outside measurements, constructed to have the highest power for the size, with Irido-platinum and zinc elements enclosed in open case similar to fig. 1.

Price.....\$50.00 See page 400

Same form of battery, with carbon and zinc elements, for minor operations:
Price.....\$25.00 See page 400

These batteries are also put up in polished walnut case, 9 1/2 inches long, 4 1/4 inches wide, and 8 1/4 inches high, (outside) and constructed so as to suspend the elements over the cells. Also to immerse any desired amount of surface of elements to the action of the fluid. Also an apartment with bottle, so that a charge of fluid can be carried in same case with battery. See fig. 2.

Price with Irido-platinum and zinc elements.....\$55.00
See page 400.

Price with carbon and zinc elements.....30.00
See page 400.

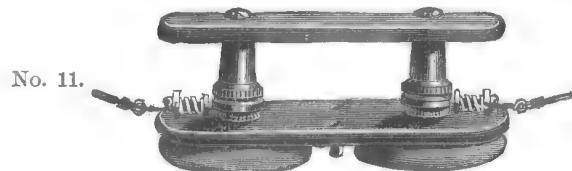
Directions for Galvano-Cautery Apparatus, as per Fig. 2.

To adjust the apparatus for operation, unscrew the thumb-nut that holds the lower end of the bar that locks the cover, (see fig. 3) and raise the cover at right angle to the box, (see fig. 2) and fasten the bar by screwing the thumb-nut firmly into the circular support, near the upper edge of box. This will support the cover so that elements can be suspended. Unscrew the knob at free end of chain, pass chain up through the catch, screw on the knob and draw the elements upward.

You can then immerse any amount of element surface by lowering the chain. The greater amount of element surface the more heating power.

KIDDER'S ELECTRIC APPLIANCES.

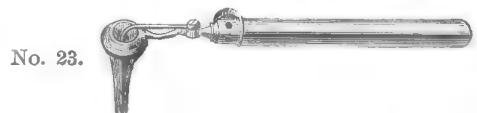
PRICE LIST. (FOR DISCOUNT SEE PAGE 400.)



Carbon Sponge Holders, both the positive and negative electrodes.....



Universal Handle with screw clasp and interrupter.....



Another form of Ear Electrode, rubber funnel-shaped insulator.....



Glass Eye-Cup, to be filled with water.....



Insulated Throat Electrode.....

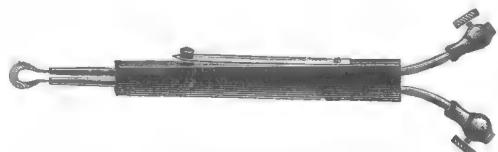


Tongue Electrode.....

THROAT AND NASAL CAUTERY ELECTRODES.



With Flexible Insulated Rods that can be formed to any curve or angle.....



Small handle with interrupter
Burners A, B, C, D, E, F, G, H

No. 54.

KIDDER'S SUPPLIES FOR BATTERIES.

PRICE LIST. (FOR DISCOUNT SEE PAGE 400.)

OPEN BATTERIES.

PLATINAS.

Each.

4 inches long, 2 $\frac{1}{4}$ inches wide.....	\$1 50
4 $\frac{1}{2}$ " " 2 $\frac{1}{4}$ " "	1 75
5 $\frac{1}{2}$ " " 2 $\frac{3}{4}$ " "	2 50
5 $\frac{1}{2}$ " " 1 $\frac{1}{4}$ " "	1 50

ZINCS.

Per Pair.

4 $\frac{1}{2}$ inches long, 2 $\frac{1}{4}$ inches wide, $\frac{1}{4}$ inch thick.....	\$0 75
5 " " 2 $\frac{3}{4}$ " "	1 00
5 $\frac{3}{4}$ " " 3 $\frac{1}{2}$ " "	1 50
6 " " 1 $\frac{3}{4}$ " "	75

JARS.

Each.

Round 4 $\frac{1}{2}$ inches deep, 3 $\frac{1}{4}$ inches diameter.....	\$0 50
5 " " 3 $\frac{1}{4}$ " "	75
Round and heavy, 6 inches deep, 5 $\frac{1}{4}$ inches diameter.....	1 25
Flat 5 $\frac{1}{2}$ inches deep, 5 inches long and 1 $\frac{1}{4}$ inches wide (mouth 2 $\frac{3}{4}$ x 1 $\frac{1}{4}$ inches).....	50

RUBBER STOPPER BATTERIES.

PLATINAS.

Each.

3 $\frac{1}{2}$ inches long, 1 $\frac{1}{4}$ inches wide (Tip Battery).....	\$1 75
3 $\frac{3}{4}$ " " 1 $\frac{1}{2}$ " "	1 75

ZINCS.

Per Pair.

4 inches long, 2 inches wide, $\frac{5}{16}$ inch thick (Tip Battery).....	\$0 80
4 " " 1 $\frac{1}{2}$ " "	60

JARS.

Each.

Round 5 $\frac{1}{4}$ inches deep, 3 $\frac{1}{4}$ inches diameter.....	\$0 75
Square 5 $\frac{1}{4}$ " " 2 $\frac{1}{2}$ " square.....	50

Glass jar for Tip Battery.....

1 00

Stopper element complete, ready to place into jar, and consisting of the following: 2 zinc plates, 1 platina plate, 1 stopper, 3 vulcanite nuts, 1 vulcanite tube, 1 set metallic clamps, and pair flexible metallic connecting cords.

FARADIC BATTERY SUPPLIES.

Rubber stopper, 1 $\frac{1}{2}$ inches thick, 1 $\frac{1}{4}$ inches diameter.....	\$1 00
Metallic clamps for stopper battery, per set.....	50

Vulcanite nuts " " " each.....	08
" tube (small) for stopper battery, each.....	08

Metallic spring and stand for supporting Tip Battery.....	75
Metallic clamp for binding elements together of open battery.....	40

GALVANIC BATTERY SUPPLIES.

Battery Jars. Hard Rubber, 4 $\frac{1}{2}$ inches deep, 2 $\frac{1}{2}$ inches long, 1 $\frac{3}{4}$ inches wide.....	\$0 35
Carbons. 5 $\frac{1}{4}$ inches long, 1 $\frac{1}{2}$ inches wide, $\frac{1}{4}$ inch thick.....	40

Zincs. 5 $\frac{1}{4}$ inches long, 1 $\frac{1}{2}$ inches wide, $\frac{1}{8}$ inch thick.....	20
------------------------------------------------------------------------------------------------	----

Best quality, silk covered copper strands, 5 $\frac{1}{2}$ feet long, per pair.....	1 00
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CORDS.

These Cords are thoroughly insulated with cotton, which is covered with pure gum and then finished in silk or cotton. Perfect insulation against moisture.

Quality, copper conductor, silk covered, each 5 $\frac{1}{2}$ feet long, per pair..... \$1 00

Quality, copper conductor, cotton covered, each 5 $\frac{1}{2}$ feet long, per pair..... 80

Insulated (copper conductor) flexible metallic cords for connecting the Tip Battery with the helix, per pair..... 25

CHLORIDE OF SILVER DRY CELL MEDICAL BATTERIES

MANUFACTURED ONLY BY THE

Chloride of Silver Dry Cell Battery Co.
OF BALTIMORE CITY, MD

The distinguishing feature of the now well-known Chloride of Silver Dry Cell Batteries, whereby they differ essentially from all others, obsolete as well as existent forms, is not only the particular way and manner the Silver Chloride is applied to electrical work, ensuring compactness, efficiency, constancy and durability; but also the fact that the cells themselves, *dry and free from liquid*, when they are finished, become *immediately ready for long-continued use* without further attention of any sort soever until their elements shall have been completely reduced and exhausted.

THE ADVANTAGES WE CLAIM FOR THEM ARE:

1—COMPACTNESS AND PORTABILITY.

A 50-Cell Galvanic Battery, that has an electro-motive force of more than fifty volts, with electrode cords, rheostat, tray and mahogany case, 6x7x10 inches, complete, weighs not more than 11 pounds; and the weight of a 50-Cell Combination Battery having a powerful Faradic Coil in same box, is but a trifle more. The inestimable benefit to physician and patient alike of so complete and powerful an electrical outfit, that can be freely and easily carried wherever necessary, needs no argument.

2—CLEANLINESS.

This point necessarily follows from the absence of all liquid and the hermetical sealing of the cells—caustic and corrosive liquids being out of the way, there is no reason but what the batteries must remain clean at all times.

3—CONVENIENCE AND RAPIDITY OF ACTION.

No battery can be as conveniently and quickly operated as these. With them it is only necessary to open the box, connect the electrodes, when the current instantly develops upon final closure of circuit. Reverse the process: open the circuit, disconnect the electrodes, and current, together with waste of elements, at once ceases.

4—CONSTANT AND UNIFORM CURRENT.

Steady work does not weaken the strength of current or cause it to fall in the slightest. After two or more years of regular use, due trial and strict examination shows that the Chloride of Silver Dry Cell Constant Current Batteries produce the same even, steady flow of electricity as when just finished. No other practical use of medical battery ever has done or can do that—a few minutes to an hour is sufficient to exhaust the power of any of them, from the Bichromate up.

5—EXTREME DURABILITY.

This follows as a matter of course from what has been said above—the simplicity of the apparatus and absence of the parts liable to wear, loss or breakage, as well as of fluid to evaporate, corrode or destroy metal and connections; preservation of elements and prevention of all waste while the battery is not in use; superiority in respect of lasting quality is beyond question. No repairs are ever necessary, as the life of a Constant Current Chloride of Silver Dry Cell Battery is only limited by the actual amount of work it does. This work, after two or more years, finally reduces the elements, when the inner cases, with their exhausted cells, can, at a nominal cost, be exchanged for new cases, containing entirely new cells; and the battery once becomes precisely as good and powerful as ever.

CHLORIDE OF SILVER DRY CELL BATTERIES.

PRICE LIST. (Net.)

NOTE.—In ordering any of the batteries listed below it might be noted that the Nos. 1 and 2 are intended for general medical use, and are capable of treating every case, no matter what its nature, from those requiring the mildest to the strongest galvanic current; the No. 2, of course, offering the additional advantage of the induction coil. The No. 3 batteries, however, containing a small number of cells, are adapted to treatment of cases needing a mild current and to the electro-coagulation of small growths. They have full power for the work for which they are intended, but of course do not embrace so wide a field as the others. The Two-Cell Faradic No. 5 needs only a passing current, as its power is equal to any case, and will create the most delicate as well as a most intense current.

Each and every metal part of the following apparatus and electrodes is most carefully polished and nickel-plated, and each will be found even in the smallest detail, made and finished in the very best manner, and second to none in respect to every quality that goes to make up a first-class instrument.

NO. 1—GALVANIC BATTERY.

This is a constant-current Battery, designed especially for physicians' use. It is put up in a very handsome, light, hardwood box, 6x7x10 inches. Metal parts are all finely finished and nickel-plated, and each is provided with a hard-rubber switch-board for making and breaking the current and changing the poles, a water rheostat, one plain and one interrupting handle, conducting cords and best quality sponge electrodes.

24-Cell.....	Price, \$27 00	50-Cell.....	Price, \$50 00
32- " "	" 35 00	60 "	" 60 00
84-Cell.....	Price, \$82 00		

Batteries of same style, with fewer or more cells, made to order at short notice.

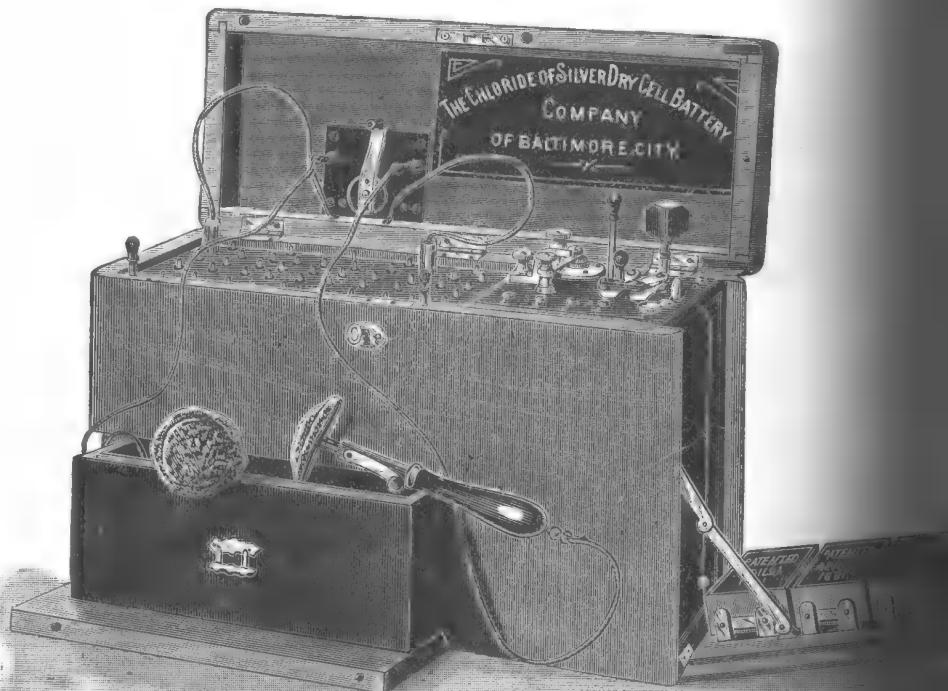


50-Cell (No. 1) Galvanic Battery—Case open, ready for work.

The capacity of these Batteries is 720 hours of actual work, based on the average resistance offered by the human body in ordinary work, which is generally conceded to be from 3,000 to 5,000 ohms. The cost of operating the 50-cell is 2½ cents per hour. The others proportionately more or less, according to number of cells. Charge for Renewing and Restoring, per cell, 30 cents.

CHAS TRUAX & CO. GREENE & CO.

CHLORIDE OF SILVER DRY CELL BATTERIES



NO. 2—COMBINATION BATTERY.

Special attention is directed to the accompanying cut, which gives an illustration of the *perfect and Convenient Combination Battery*, without exception, that has ever been offered. For some time past orders for *Combination Batteries* have been on the increase, and as these indicated the great interest that the *Chloride of Silver Dry Cell Batteries* were exciting among the medical profession, and feeling convinced that the demand for instruments having the two elements could be still further increased, we have spared neither time nor expense in making such improvements upon our previous pattern as we feel sure will command the admiration of all.

The faradic part of this battery contains three cell blocks and they are arranged in the same manner as in our previous pattern as we feel sure will command the admiration of all. For work, requiring very heavy current, the whole three cells can be used, while for ordinary work, which but a moderate degree of strength is desired—it will not be necessary to use more than two of the cell blocks. The advantage of this arrangement will be apparent to all, as it permits a careful man to economize the life of his cells; and if proper care is observed they will last a long time. The faradic part is also provided with a current reverser, current breaker; and it is possible to obtain three currents from same, viz.: The primary (or so-called direct) current, secondary (or induced) current, and a combination of the primary and secondary currents, while arrangements for increasing and modifying the strength of currents are perfect.

NET PRICE-LIST OF COMBINATION BATTERIES

CHAS TRUAX & CO. GREENE

CHLORIDE OF SILVER DRY CELL BATTERIES.

NO. 3—GALVANIC BATTERY.



No. 3.

Charge for Renewing and Restoring, 30 cents per cell.

No. 4—MIL-AM-METER. Net Price, \$30 00.

Without discussing the question of the usefulness of this instrument in connection with medical galvanism—which seems as uncalled-for as to try to demonstrate the usefulness of the apothecary's scales in the administration of doses of other things—it will be sufficient to describe the peculiar merits of our present improved form of meter and its adaptability to the service of the physician.

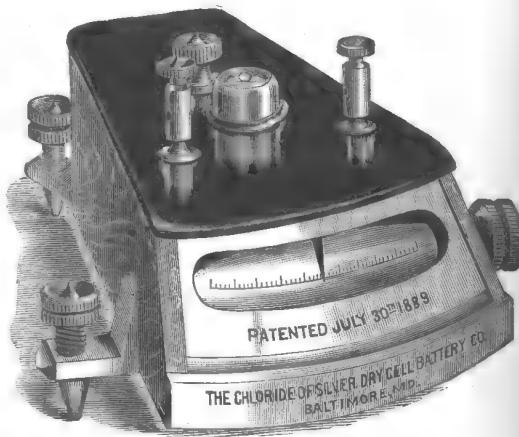
Experience has demonstrated to us just what are the desirable features to be employed in an instrument of this kind, as will be recognized from the following:

An absolute electrical meter should be accurate. The best conditions for

accuracy are the use of short magnetic needles in connection with a long pointer. In meter the magnetic needles are less than one inch long, while the pointer—of aluminum for lightness—is four inches long, thus securing an extended graduation on the scale for a very slight movement of the needles.

Such a meter should be as free as possible from changes due to changes of and surroundings. This double object we accomplish by employing a horizontal and an astatic system of magnetic needles, controlled by a fixed armature, which is permanently under the influence of an armature or keeper, for a uniform degree of magnetism. Such a system of needles is free from the influence of the earth's magnetism and is the most constant in its action.

CHLORIDE OF SILVER DRY CELL BATTERIES.



No. 4—MIL-AM-METER. Net Price, \$30 00.

3d.—Friction must be entirely absent. This we accomplish by the use of a perfectly-pointed steel pivot, working in a concave jewel, as in the best absolute galvanometers known to electricity.

4th.—The free parts of the instrument must be provided against accidental displacement. This is attained by a simple detail of mechanism, so that the magnetic needles cannot get off the pivot, even if shaken wrong-side-up or otherwise roughly used. A simple-locking device also provides for lifting the needles from the pivot and holding them fixed for transportation.

5th.—A physician's Miliamperemeter should be readable from either a sitting or standing position. In our meter we pitch the face at the front at an angle which satisfactorily meets these points.

6th.—The perfect meter should have a wide range of measurement. This has been obtained in all other meters by a complicated and troublesome method of shunting, either by switches or plugs, involving the use of various multipliers in connection with a fixed scale. In our new meter, by an entirely new and wonderfully simple arrangement, we have provided for the widest possible compass, together with three reading scales. Three independent reading scales are stamped at equal distances apart on the three faces of a celluloid roller. One of these scales is marked in milampères, divided into halves. The second scale is divided into 25 milampères, and the third scale reads up to 250 milampères. This roller is placed in the front of the meter, under the end of the pointer, on a shaft which passes through the sides of the case, and terminates in a button by which the roller may be turned.

In connection with this roller is our novel device inside the case, by which, when the roller is turned so as to bring any one of the three scales to view under the pointer, the connections within the case are automatically adjusted so as to cause the meter to read directly and accurately, according to the scale so exposed to view. This means the physician is saved the trouble of using multipliers with his readings, and has at command three separate scales meeting every desire, and each scale reading his measurements directly.

The satisfaction which physicians have in this novel and radical improvement of meters, together with the superiority of our meter in every other desirable characteristic, makes this instrument worthy of exclusive use among the profession of the country.

Price, net.....

CHLORIDE OF SILVER DRY CELL BATTERIES.



No. 5.—DOUBLE COIL FARADIC.

An elegantly finished compact instrument. Metal parts of the best material possible; carefully adjusted and handsomely nickel-plated. It has two hermetically sealed cells, either one or both of which can be used as required; a Dubois-Raymond System Induction Coil, with interchangeable fine and coarse wire winding for secondary current on the outer bobbin; wire horse-shoe, for bringing primary current into circuit; plain and interrupting handles with best quality sponge electrodes and connecting cords, etc.

Put up in handsome hardwood box, with patent self-locking handle, which securely fastens the box and lid as soon as it is shut and attempt made to lift it.

The cells of these Batteries will work 100 hours continuously and cost 1½ cents per hour to operate.

PRICE OF BATTERY, COMPLETE, NET, \$20 00.

Charge for Renewing and Restoring Cell-Blocks, each, \$1 50.

CHAS. TRUAX & CO. GREENE & CO.

CHLORIDE OF SILVER DRY CELL BATTERIES.



No. 6—"UPRIGHT" FARADIC BATTERY.

SIZE, 7x7½x5 INCHES.

This battery, designed especially for physicians' visiting use, is contained in a handsomely finished mahogany case, while all the metal parts are highly nickel-plated, presenting an extremely elegant appearance. The instrument will yield three currents: the primary (or so-called direct) current, the secondary (or induced) current, and a combination of the primary and the secondary currents. A new feature that we have adopted in connection with this battery, is the method of starting the current; this being accomplished by means of a contact key, which reduces the danger of short-circuiting to the minimum. The coil provided for this battery is rather longer than those used in instruments of its price, and enables the operator to increase the current strength very gradually, thus permitting him to apply it with safety to the most delicate child, or making it sufficiently strong so as to be suitable for his most robust patient.

A roomy compartment has been provided in the lower portion of battery case, which will be found, viz.: 2 insulated handles, 2 sponge electrodes, 2 nickel-plated canulas, and 1 pair silk covered conducting cords.

The cell block of this battery will work 100 hours continuously; there is no waste when circuit is open, and it will cost but 1½ cents for each hour of work.

PRICE OF BATTERY, COMPLETE, NET, \$15.00.

Charge for Renewing and Restoring Cell-Block, \$1.50.

CHAS. TRUAX & CO. GREENE & CO.

CHLORIDE OF SILVER DRY CELL BATTERIES.



No. 7—POCKET FARADIC BATTERY.

This instrument is designed for the use of families as well as physicians, and is extremely handy, compact, durable and simple in its mechanism. It is put up in a handsome hardwood box—8½ inches long by 4½ inches wide and 2 inches deep—and furnished with a pair of conducting cords, one pair ebonite handles and one pair hollow metal electrodes. The induction coil, giving three currents,—primary, secondary and combined,—is of superior make and finish, and has no equal anywhere in the uniformity and smoothness of its current.

The cells of this Battery will work 100 hours continuously and cost 1½ cents per hour to operate. Each cell is secured in position on floor of its box by a verticle pin passing through it and held there by the large set screw shown in cut.

PRICE OF BATTERY, COMPLETE, NET, \$10.00.

Charge of Renewing and Restoring Cell-Block, \$1.50.

In this Battery we have met the want which every physician recognizes—an instrument of the type commonly known as the Pocket Battery—of beautiful finish and low price, with every quality satisfactory to the user, and with all the trouble and nastiness of the wet cell entirely banished. This Battery is a genuine triumph in this direction, combining perfection in every detail, together with a permanently closed Dry Cell, which in the use of the Battery does not have to be touched or treated in any way. To set the Battery in operation, open the cover and turn the switch; closing the cover breaks the circuit. We are sure these points will appeal to the experience of every one who has used, or desires to use a Pocket Battery.

CHAS. TRUAX & CO. GREENE & CO.

CHLORIDE OF SILVER DRY CELL BATTERIES.

A NEW FAMILY BATTERY.

"THE LORD BALTIMORE"

Very frequently physicians prescribe Faradic Batteries for their patients, and the intelligent doctor being fully aware that those which we manufactured were the cheapest, provided quality was taken into consideration, did not hesitate to recommend the purchase of a *Chloride of Silver Dry Cell Faradic Battery*; when, however, such an order reached our agents, it was found that a \$10 battery was the cheapest that could be obtained, and many customers not having this amount to spend, were compelled to buy an antiquated troublesome acid or fluid battery. Thinking that a *poor man* has as much right to possess a good battery as a *rich man*, we have constructed an instrument at a price within the reach of all, as shown in cut No. 7-A. It meets all the requirements of a cheap, but *first-class*, machine. The case is of hard wood, highly polished, and measures only 4x5x2 inches. It is not only the best made and cheapest faradic battery on the market, but it is also the most economical to maintain. No destructive acid! No corrosive materials! It is a *comfort at home*, and *invaluable while traveling*. It is so simple that a child can use it.

To start the current it is only necessary to place the cell block between the metal springs in such a way as to bring them and the metal strips on the sides of the block in good contact. See that the buzzer spring is properly adjusted, and the battery will work without further trouble or interference.

Owing to the care with which this battery is made, the currents are *perfectly smooth*. It will furnish a *primary*, a *secondary*, or a *combined current*, as desired. All three of the currents can be modified to suit the most *delicate child*, and can be increased to suit the requirements of the most *robust man*. The apparatus is provided with a pair of conducting cords, and a pair of handsome nickel-plated electrodes.

In this battery we have solved the problem of making a strictly *first-class* instrument at a *very moderate cost*, and we are convinced that, taking into consideration its *many excellent qualities*, its completeness and its fine finish, that it is the *cheapest battery on the market to-day*.

Price of Battery, complete.....
Price of renewing and restoring cell block when it becomes exhausted.....

LIFE OF BATTERY CELLS FORTY HOURS.

If cell block is ordered to be returned by mail, add 6c. to cover postage.



No. 7-A.

CHAS. TRUAX & CO. GREENE & CO.

CHLORIDE OF SILVER DRY CELL BATTERIES.



FARADIC BATTERY No. 8.



CHLORIDE OF SILVER DRY CELL BATTERIES.

PHYSICIANS' FARADIC BATTERY, No. 8.

The foregoing cut is a good illustration of this *new battery*, which is now ready for the market, and we have no hesitancy in claiming it to be the *finest faradic electrical apparatus* on the market to-day. The price has been placed at a very reasonable figure, and those who wish to secure a most *complete and valuable instrument* are now in position of doing so.

The battery is composed of three cell blocks, capable of furnishing a very wide range of current, and by means of the switch immediately to the front of the vibrator spring the operator can throw either one, two, or the whole three cell blocks in circuit; this being an extremely convenient arrangement, as, in the majority of cases, but a moderate degree of strength is required, and it is thus possible to use one or two of the blocks for ordinary work, reserving the third for special cases requiring a very strong current. Careful management will permit the owner to *economize the life of the cells* very much by means of this arrangement.

The instrument is provided with a primary and four distinct secondaries, with switches for controlling each, while provisions have also been made for combining the primary with each one of the secondaries, thus securing nine different currents. The switch in front of the first cell block is the current reverser, and the ivory button "1" immediately to the left of the binding post "5" is the current breaker for making and breaking the current.

It will be noticed that there are no coils exposed to view; these are concealed under the battery plate, and the current strength is increased or diminished by means of a "Willms" dry current controller, which is placed in the circuit. Special attention is requested to this arrangement, for we are the *first house in the world to place a portable faradic apparatus on the market, in which the current is controlled in this manner*, and it is so infinitely superior to the old method of varying the current by moving one coil over the other, that there is really no comparison between the two. In using the current controller, the increase or decrease of strength is so gradual that it is much more pleasant for the patient, and this can be specially noticed in mucous membrane and other sensitive portions of the human body.

The battery and mechanical parts composing the instrument are enclosed in a finely-polished mahogany case, and the latter is provided with our patent self-locking handle, of same pattern as that which we use on the double coil battery, No. 1.

PRICE OF BATTERY, NET, \$35,00

SIZE, 15 $\frac{1}{4}$ x 9 $\frac{1}{2}$ x 6 INCHES.

Life of each cell block when used separately, 100 hours, or an average life of about 150 hours for the three.

NOTE.—Just before going to press, we completed arrangements for a very important improvement in the No. 8 battery described above, and which lack of time has not permitted us to illustrate in the cut of this instrument. Each one of these batteries that we shall send out in the future will contain both rapid and slow rheotome, in addition to the other novel features already referred to, while no extra charge will be made for same, notwithstanding the increased cost to the manufacturer. This instrument needs but to be seen to be at once appreciated.



CHLORIDE OF SILVER DRY CELL BATTERIES.



GALVANIC BATTERY OF FIFTY CELLS CONTAINING MIL-AM-METER
AND "WILLMS" DRY CURRENT CONTROLLER.



CHLORIDE OF SILVER DRY CELL BATTERIES.

GALVANIC BATTERIES OF TWENTY-FIVE OR MORE CELLS, WITH
A "WILLMS" DRY CURRENT CONTROLLER PLACED
PERMANENTLY IN THE CIRCUIT.

These batteries are again something entirely novel in the electro-medical field, and their importance cannot be over-estimated, for it has heretofore been impossible to obtain an instrument of this character, while the advantages to be derived from the use of similarly constructed apparatus has long been admitted and commented upon. In the instrument described in head lines above, there are a number of cells arranged in series, and concealed from view by a handsomely finished top plate; the terminals being connected with the mechanism which is exposed to view, and which at the same time is exceedingly simple in its arrangement, consisting as it does of two binding posts for the reception of the conducting cords, a current reverser, a cell selector for placing exactly the number of cells required in the circuit, and last but not least, a dry rheostat or current controller for maintaining an equality in variation of current strength, and making it possible to work about the most sensitive portions of the human body with safety and comfort. Quoting from the letter of an eminent member of the profession residing in Philadelphia, this gentleman, in the course of his correspondence with us on electrical matters, remarks: "With "dry" cells, "dry current controller" (in reality and not in theory), with the elegantly made accessories, and with the thoroughness and beauty of construction throughout, both in parts open and concealed from sight, it would be difficult to find an opportunity for criticism other than in favor of this elegant apparatus. How any doctor can use the antiquated acid affairs with their eternal failure to work, their dirt and bad smells, their inconstancy and roughness, and their cost for incessant repairs, when the facture of your workshops is open to him at a cost so low as to leave competition out of the question altogether (value alone being considered), is a mystery to me."

The cut on preceding page represents a 50-cell galvanic battery, with a fine milliam-meter, and "Willms" dry current controller placed permanently in the circuit, and gives a good idea of the appearance of the three following styles:

PRICE-LIST. (NET.)

Galvanic batteries with "Willms" dry current controller.

25 cells, price.....	\$1.30
35 cells, price.....	\$1.30
50 cells, price.....	\$1.60

Galvanic batteries with mil-am-meter and "Willms" dry current controller.

25 cells, price.....	\$1.30
35 cells, price.....	\$1.30
50 cells, price.....	\$1.60

Galvanic batteries with mil-am-meter, "Willms" dry current controller, and a complete faradic part containing primary, four secondaries, dry rheostat, rapid slow rheotome, and all accessories as furnished with the No. 8 battery described on foregoing pages.

25 cells, price.....	\$1.30
35 cells, price.....	\$1.30
50 cells, price.....	\$1.60

All of these instruments are very convenient in size and shape, and *perfectly* portable.



DIRECTIONS FOR MAKING BATTERY FLUIDS.

Any one of the following different formulae will answer well for the manufacture of fluid for batteries of the zinc-carbon type, though preference is given by most practitioners to Nos. 1 and 2.

GALVANIC AND FARADIC.

No. 1.—Sulphuric acid, (commercial) 18 fluid oz.; Powd. Bichromate of Potass. 14 oz.; Water, 112 fluid oz.; Bisulphate of Mercury, 14 drachms. Dissolve the Bisulphate of Mercury in the Water, then add the Bichromate of Potass. When dissolved, pour in the Sulphuric Acid and allow the liquid to cool, as the mingling of the acid and water produces heat; if the mixture is used when warm it injures the battery.

The Bisulphate of Mercury keeps the zincs well amalgamated.

No. 2—Dissolve four (4) ounces of bi-chromate of soda in one (1) quart of hot water, in an earthenware or glazed iron vessel. When cooled off, add to it four (4) fluid ounces commercial sulphuric acid and one-half ($\frac{1}{2}$) ounce of bi-sulphate of mercury. Mix well. The addition of bisulphate of mercury, while it may be dispensed with, tends toward improving the condition of the zinc plates.

No. 3—Dissolve one and a half (1 $\frac{1}{2}$) ounces of bi-chromate of potassium in twenty-four (24) fluid ounces of hot water, in an earthenware vessel and add to it three-fourths ($\frac{3}{4}$) ounces of saltpetre. Allow it to cool to the temperature of the air, and add three (3) fluid ounces of commercial sulphuric acid. When cold again, add a solution of one-half ($\frac{1}{2}$) ounce of bi-sulphate of mercury in three (3) fluid ounces of cold water, with a little sulphuric acid added to it. This quantum will yield one quart of the battery fluid and should not be used until cold.

No. 4—Into one gallon of water put eight ounces of commercial sulphuric acid, stir thoroughly and add eight ounces of pulverized bichromate of potash, stir thoroughly until it is all dissolved. Use when cool.

CAUTERY.

No. 5—Dissolve one (1) pound (avoirdupois) of bi-chromate of potash in one (1) gallon of boiling water, and when cold add twenty-four (24) fluid ounces of commercial sulphuric acid. When this is cold, add eight (8) fluid ounces of a saturated solution of nitrate of ammonium in nitric acid, and add a solution of one and a half (1 $\frac{1}{2}$) ounces of bi-sulphate of mercury in one (1) pint of cold water. Use the fluid when cold; it will, if made up in quantity and bottled, keep for any length of time.

No. 6—Dissolve sixteen (16) ounces of bi-chromate of soda in one (1) gall. of hot water in an earthenware or glazed iron vessel. When cooled to the temperature of the air, add to it eighteen (18) fluid ounces of commercial sulphuric acid and three (3) ounces of bisulphate of mercury. Mix well and use when cold.

AMALGAMATING OR MERCURY SOLUTION.

Suitable for the Zincs of all Galvanic, Faradic and Cautery Batteries.

No. 7—Mix in an earthenware, covered vessel, one (1) pound nitric acid, with two ($\frac{2}{3}$) pounds of muriatic acid, to which add eight (8) ounces of metallic mercury. Let stand 5 to 6 hours or longer and then add three (3) pounds more muriatic acid. This solution should be kept in a covered vessel and may be used many times.

Electrode, Einhorn's, Deglutible or Stomach Net, \$2.25